THE PHYSICAL ENVIRONMENT

AND

ORGANIZATIONAL BEHAVIOUR

Henrietta Pecyna, B.A.

Department of Graduate and Undergraduate Education

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ABSTRACT

Research into organizational behaviour has indicated that there is an inevitable conflict between the needs of the individual and organizational demands. Psychologists have given insights into basic individual needs and contend that satisfaction of these needs constitutes a motivating force which enhances desired behavioural patterns. Behaviouralists have suggested that a basic and pervasive individual need is the culturally determined need for privacy. Anthropologists and environmental psychologists have shown that man's spatial behaviour is observable and predictable and that changes in the physical environment or the way it is perceived are accompanied by concommitant changes in behaviour. Research findings from each of the disciplines have been reviewed in an attempt to show that the physical environment is a significant factor in satisfying the needs of the individual organizational member, hence, a significant influence on organizational behaviour. A model has been generated to show the relationship between the physical setting and behaviour and to underscore the importance of making provisions within the physical setting for the attainment of a culturally determined optimal level of privacy. The physical setting, by providing for this need, becomes a significant factor in reducing the conflict between the individual and the organization and makes for acceptable role behaviour and the fulfilment of organizational goals.

TABLE OF CONTENTS

CHAPTER I

Introduction

Well over forty years ago, in formulating a theory of aesthetics, John Dewey observed that "life goes on in an environment; not merely in it, but because of it, through interaction with it."[1] Far from being a mere fleeting reference or passing observation, his preoccupation with the concept of environment is evidenced by his further observation on human development and culture:

> "As the developing growth of an individual from birth to maturity is the result of interaction of organism with surroundings, so culture is a product not of efforts of men put forth in a void or just upon themselves, but of prolonged and cumulative interaction with the environment."[2]

Yet Dewey's recognition of the impact of the environment on human life, hence behaviour, was ignored, or, at best, perverted by narrow definitions of the concept of environment, disregard of the pervasive influence of culture and blindness to consistent patterns of behaviour exhibited by both men and other animals in their use of space.

Studies of human behaviour have consistently disregarded the importance of the environmental milieu as a mediating or causative variable. Conceptualization of the environment as mere physical setting or the stage and backdrop on which men play their roles is clearly inadequate and unacceptable. Equally restricting has been the

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[1] John Dewey, Art as Experience, (New York: Minton, Balch & Co., 1934), p. 13.

[2] Ibid., p. 28.

tendency of social scientists, especially psychologists, to regard man as a responder to the environment,[3] thus treating the physical environment as an underdeveloped resource. The concept of environment as an exclusively social phenomenon has been decried by Wohlwill and Kohn (1976) as a nebulous generality. Wicker (1972) argues that the concept of a man-environment dichotomy wherein the environment is seen as a discrete and separate entity surrounding the individual is a dangerous oversimplification. The complexity of the phenomenon is underscored by those who describe environment in terms of the behaviour setting unit, extremely complex patterns of stimuli which include physical components, people and patterns of behaviour.[4] Neither simple nor static, the environment is increasingly being seen as a dynamic relationship between person and setting, one which "is likely to alter the goals of an institution, the social relationships of the inhabitants and the physical setting itself, if not through changes in the physical materials, then through the development of imaginary barriers, defined by use."[5]

This view of environment as a complex interpersonal communication system, one in which the physical environment is a component of an intricate behavioural repertoire, has gained wide acceptance

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[3]Clifford B. Moller, Architectural Environment & Our Mental Health, (New York: Horizon Press, 1968).

[4]R. G. Barker, Ecological Psychology, (Stanford: Stanford University Press, 1968); R. G. Barker & P. Gump, Big School Small School, (Stanford: Stanford University Press, 1964); Wicker, p. 265-277.

[5]H. M. Proshansky, W. H. Ittelson & L. G. Rivlin, eds., Environmental Psychology: Man and His Physical Setting, (New York: Holt, Rinehart & Winston, 1970), p. 278.

among scholars from many disciplines.[6] Behaviour cannot be understood independent of the environmental context[7] and is guided not only by man's needs and the goals he seeks but by his perception and interpretation of the environment[8]. Research has shown that this complex interchange between the individual and physical environment is an important determinant of the overt behaviour of children, adolescents and adults.[9]

Since both the individual, with his social roles, culturally determined norms and behaviours, and the physical environment are parts of this dynamic system, a change in one component affects the other, that is, individuals are affected by the physical environment and in turn, use the environment to shape their interactions, hence

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[6]Irwin Altman, The Environment & Social Behavior, (Monterey, Calif.: Brooks/Cole Publishing Company, 1975); David Canter & Kyung Hoi Lee, "A Non-Reactive Study of Room Usage in Modern Japanese Apartments" in David Canter & Terence Lee, Psychology & the Built Environment, (Kent: Whitefriars Press, 1974); William H. Ittelson, Karen A. Franck & Timothy J. O'Hanlon, "The Nature of Environmental Experience" in Seymour Wapner, et al, eds., Experiencing the Environment, (New York: Plenum Press, 1976).

[7]Barker, Ecological Psychology, 1968.

[8]Gary T. Moore, "Knowing About Environmental Knowing: The Current State of Theory & Research on Environmental Cognition" in Environment and Behavior, II (1979), 33-70; H. M. Proshansky et al eds., Environmental Psychology, 1970.

[9]Barker, Ecological Psychology, 1968; R. G. Barker & L. S. Barker, "Behavior Units for the Comparative Study of Cultures" in B. Kaplan ed., Studying Personality Cross-Culturally, (New York: Harper & Row, 1961), p. 457-476; Barker & Gump, Big School, Small School, 1964; A. W. Wicker, "Undermanning, Performances and Students' Subjective Experiences in Behavior Settings of Large & Small High Schools" in Journal of Personality & Social Psychology, X (1968), 255-261; E. P. Willems, "Sense of Obligation to High School Activities as Related to School Size & Marginality of Student" in Child Development, XXXVIII (1967), 1,246-1,260.

creating, to some degree, the environmental unit they inhabit.[10] Interpretation of environmental phenomena depends on the values and needs of the perceivers[11] rendering a dialectic value function to the physical environment. It functions not only as a reflection of the value systems of the individuals within it but as an active component in the generation of these values.[12] Descriptive research on behaviour has indicated that characteristic patterns of behaviour, largely unconscious and unverbalized, tend to develop with site or setting and that, in the context of everyday affairs, individuals are dependent on a congruence between behaviour patterns and environment for predictability and social order. Behaviour, then, is largely controlled by the environmental setting, and, it follows that modifying environmental variables will result in concommitant modifications of behaviour.[13]

Background to the Problem:

The development of changing concepts involving the relationship

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[10] Paul V. Gump; Proshansky et al, Environmental Psychology, 1970; Irwin Altman, The Environment & Social Behavior, (Monterey, Calif.: Brooks/Cole Publishing Company, 1975).

[11] Seymour Wapner, Saul B. Cohen & Bernard Kaplan, Experiencing the Environment, (New York: Plenum Press, 1976).

[12] William H. Ittleson, Environment & Cognition, (New York: Seminar Press, 1973).

[13] Edwin P. Willems, "Behavioral Ecology as a Perspective for Man-Environment Research" in Wolfgang E. Preiser ed., Environmental Design Research Vol.II, (Stroudsburg, Penn: Dowden, Hutchinson & Ross, Inc., 1973).

between environment and behaviour has been paralleled by changes in educational administration and organizational interdisciplinary approaches to their conceptualization, research, and development of theoretical systems. The study of administration has been highlighted by emphasis on organizational development and psychosocial behavioural analyses of organizational members. Administrative theory is very much involved in the behaviour of people in organizational settings. Getzels (1958) conceives of organizational behaviour as a two-dimensional phenomenon, the nomothetic or normative dimension and the ideographic or personal dimension, a duality to be equitably balanced by the skilful administrator. Owens (1970) dwells on the dynamic interrelationship between institutional requirements and the idiosyncratic needs of individuals within the organization. Etzioni (1964) draws attention to the inevitable strain imposed on administrators, particularly in organizations staffed by semi-professionals, in creating a satisfactory balance between organizational and personal needs. Owens and Steinhoff (1976) regard contributions from the behavioural sciences as fundamental to healthy organizational growth and change.

Although much research has centred around the concept of organizational climate, relatively little has been written about the effect on the climate of the organizational environment. The physical component of this complex phenomenon acts as a generator of a set of values which influences the functioning of the organization and as a source of information to complement administrative decision making.[14] Examination of the relationship between the individual and his

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[14]Fred I. Steele, Physical Settings & Organizational Development, (Reading, Mass.: Addison-Wesley Publishing Co., 1973).

environment in the microcosmic sense with emphasis on prediction and understanding of the consequences of the physical environment on individual behaviour, serves as a function of the macrocosmic relationship of the total organizational environmental milieu. The ultimate practical goal of the study of environment and behaviour relationships in specific contexts must be "to distinguish between characteristics of the environment that facilitate attainment of organizational goals from those that obstruct or impede such attainment and to clarify the processes underlying the effect of the environment on the goals."[15]

Problem Theme:

The need for integrative thinking in the environment and behaviour field is especially pertinent in today's educational organization. The number of studies dealing with spatial behavioural patterning in schools is negligible, yet tremendous changes have been made in the physical plant. Schools are society's institutions providing for the socialization, control, growth and development of individuals, yet disaffected citizens are not loath to express their outrage at the costs of education and their opinion that the innovative decade of the sixties did little to improve the quality and product of education. Since behaviour is, in a sense, both the process and product of education, it is important to be aware of how environment and behaviour affect one another and how they affect the establishment and maintenance of educational goals.[16] From the evidence, it would appear that physical environmental changes can be used to start or to support

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[15]Proshansky et al, Environmental Psychology, p. 280.

[16]Daniel T. Perley & Peter H. Martin, "An Environmental Perspective on Educational Planning" in Phi Delta Kappan, January, 1975, p. 358-359.

organizational changes and that schools must be studied as carefully as the behaviour of the individuals within them.[17] The educational environment has changed and is still changing rapidly and the impact of this change and of the human consequences of physical design must be understood if organizational goals and processes are to remain relevant to societal realities.

Nowhere has this been more evident than in Ontario in the sixties after the introduction of the Hall-Dennis Report, a document which had a real effect on all members of the educational organization. The interest and excitement created by the report coupled with unprecedented expenditures in governmental educational spending provided the impetus needed to explore new educational structures and new relationships between administrators, teachers, trustees and parents. Innovations were introduced and adopted quickly and unparalled activity and a proliferation of new experiments and technologies characterized the decade in educational circles.

Many school systems across Ontario experienced an increase in the number of physical plants and additions to existing ones. The majority of these was characterized by a different concept in physical settings for schools, the architecturally open plan. Initially, open space was a simple modification of the self-contained classroom that was developed to accommodate team teaching. Today, many open space schools are large open areas capable of accommodating the entire student body and teaching staff. Needless to say, the behaviour of all the occupants of these areas has been affected. As teachers and pupils became more visible, role performances and expectations

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[17]Steele, Settings & Organizations, 1973 and Barker & Gump, Big School, Small School, 1964.

underwent modification. As furniture arrangements became less static, janitorial tasks became less stereotyped. Educational methodology, evaluation procedures and administrative techniques were, of necessity, modified to some extent by the change in environmental setting.

Statement of the Problem:

Despite the growing mass of literature dealing with organizational behaviour, the body of research literature seems fragmentary and is characterized by a lack of continuity which weakens the impact of findings made to date. Leadership styles may be described, organizational climates analyzed, but a vital component, a linking thread seems to be missing from the fabric of organizational theorizing. Putting behavioural concepts into practice and applying behavioural theory and research to organizational problems can be extraordinarily difficult, well nigh impossible for the pressure ridden administrator who is not a professional specialist in organizational and behavioural research. Organizational behaviour is an incredibly complex concept, an everchanging and dynamic phenomenon involving a diversity of personalities, values and relationships. At any given point in time, the only statement that can be made with regard to organizational behaviour is that it involves human beings and it takes place in a physical space. It is my contention that the "linking thread" or basal component of organizational theorizing is space and that physical space and design add the element of predictability to human behaviour. The predictability or spatial patterning melds the existing body of organizational behaviour research into a manageable whole and facilitates the application of theory and practice of behavioural concepts to organizational realities.

The focus of this thesis is the relationship between environment and behaviour. The basic assumption is that understanding man's structuring of space and spatial behaviour patterns, too long a neglected or overlooked source of organizational information, will better equip the administrator to achieve the necessary balances between the institutional and the personal dimensions of the organization. Such information would assist the administrator in facilitating human interaction, make for efficient and effective task completion and encourage the attainment of organizational goals. Hence, the problem for this study is to present descriptive data concerning man's use of environmental rules and markers and to generate a model which will identify the critical factors which determine the relationship between the physical setting component of the environment, the individual organizational member's need for privacy and the attainment of organizational goals.

In its broadest sense, the term environment refers to one's surroundings, the complex of natural and man-made phenomena and the aggregate of social and cultural norms which together influence an individual, and, ultimately, determine his way of life and his survival. For the purposes of this paper environment will be defined as that dynamic system which is a product of the interaction between the physical setting, and the cultural and organizational values and norms internalized by the individual. The physical setting, in terms of the built environment, provides identity, orientation, location and the space in which behaviour occurs. Internalized values and norms determine significance for elements of the physical setting and suggest courses of overt behaviour which enable individuals to cope with life within that setting. Underlying this study is the assumption that although cognition is an individual

process, cognition of the environment is basically a social creation. Crucial to this definition of environment, then, is the symbolism attached to elements of the built environment which are products of social or cultural values, beliefs and norms.

Concern with the physical setting implies a concern for the process of environmental or architectural design, a process wherein the architect strives to attain a reasonable balance between the needs of building users and the environment they are to inhabit. One important feature brought into play by the planner is the wide range of elements relating to biological needs such as sanitary facilities, heating, ventilation and lighting. A second deals with elements relating to social needs and the provision of facilities for social interaction. Traditionally, the research and planning involved in the design process has dealt scientifically with the first and intuitively with the second. However, if the design process is to succeed in fulfilling user needs, it is incumbent on all involved in the planning and designing of the physical space in question to weigh carefully the implications of man and environment as a dynamic whole and a deliberate and careful effort must be made to incorporate into the design provisions to meet the shifting spatial needs of building users in terms of privacy, personal space, territoriality and freedom from crowding. This study will deal exclusively with this latter set of social concerns of the architectural planner.

Organizational climate is a complex variable which can determine organizational health and growth or decay and failure. The immediate physical environment has a great influence, attitudinal, emotional, psychological and social on organizational climate. Organizational

environment influences attitudes, perceptions and sensitivities of organizational members. Since space utilization patterns are anchored in the deep culture, modification of space affects the individual's basic need of achieving privacy. As space utilization is changed or modified, for example, it is important that the individual's right to privacy is not impinged upon by threatening his ability to regulate boundaries to maintain optimum personal space, achieve control over a territory or provide freedom from crowding. These are the spatial variables of the physical setting relating to social needs and interaction which will provide the basis for the generation of a systemic model of organizational behaviour.

Outline of Study:

In order to determine the extent to which physical space adds predictability to behaviour and to generate a model of relationship between the environment and human behaviour, it will first be necessary to survey the literature on space and human behaviour to provide descriptive data regarding the basic relationships between individuals and their total environment. A necessary second step is a survey of the literature of physical settings and behaviour as a more specialized component of spatial behaviour. Relevant concepts of spatial behaviour described in the literature, namely privacy, personal space, territoriality and freedom from crowding, will be used to generate a systemic model of the relationship between the physical environment and organizational behaviour. This model will be applied to the educational setting with emphasis on the open plan school setting. Implications of the model's application will be discussed and further problems

proposed. The study will be limited to the behavioural and spatial aspects of the environment which affect behaviour.

CHAPTER II

Overview of Literature:

It was Edward T. Hall,[1] an anthropologist, who first drew the attention of scholars from many disciplines to the relevance of the environment in determining man's behaviour. Drawing heavily from studies of animal behaviour and cross-cultural research of ethologists, ethnologists, anthropologists and psychologists, he underscored the importance of man's use of space as an intricate and complex tool of communication.[2] The physical environment and the structure of semi-fixed features, he argued, serve not only as parameters for understanding behaviour but have themselves a profound effect on behaviour.[3] Hall coined the term "proxemics" and devised a system for the notation of proxemic behaviour, that is, the way in which an individual structures microspace and relates physically to other individuals in face to face interactions.[4]

Man's structuring and perception of space is not a matter of indifference, rather is subject to observable regularities and

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[1]Edward T. Hall, The Silent Language (New York: Doubleday, 1959).

[2]Edward T. Hall, The Hidden Dimension (New York: Doubleday, 1966).

[3]Edward T. Hall, "The Anthropology of Space: An Organizing Model" in H. M. Proshansky et al eds., Environmental Psychology, 1970, p. 16-27.

[4]Edward T. Hall, "A System for the Notation of Proxemic Behaviour", American Anthropologist, LXV (1963), 1003-1026.

consistent patterns.[5] As basic a need as food or sex, and as vital to humans as it is to other animals,[6] the regularities persist regardless of the individuals involved.[7] Spatial behaviour patterns in humans are largely unconscious and usually unverbalized,[8] are culturally[9] and sexually specific[10] and internalized very early in childhood.[11] Disconfirmation of culturally established expectancies in the use of space is confusing and frustrating and can lead to forms of deviant behaviour.[12] Norms of spatial behaviour in any culture, then, by providing guides for social interaction and strong social sanctions against their

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[5]Edward T. Hall, "Anthropology of Space", 1970; Miriam Leibman, "The Effects of Sex and Race Norms on Personal Space", Environment and Behavior, II (1970), 208-246; William Michelson, ed., Behavioral Research Methods in Environmental Design, (Stroudsburg, Pennsylvania; Dowden, Hutchinson & Ross, Inc., 1975).

[6]Edward T. Hall, "Notation of Proxemic Behavior", p.422; David Stea, "Space, Territoriality and Human Movements", in Proshansky et al, eds., Environmental Psychology, p.37; O. Michael Watson, Proxemic Behavior: A Cross-Cultural Study, (The Hague: Mouton & Co., 1970), p.114.

[7]Proshansky et al, eds., Environmental Psychology, p.29; Robert Sommer, Personal Space: The Behavioral Basis of Design (Englewood Cliffs, N.J. : Prentice-Hall, Inc., 1969), R. G. Barker, Ecological Psychology (Stanford: Stanford University Press, 1968).

[8]Kenneth B. Little, "Personal Space" in Journal of Experimental Social Psychology, I (1965), p. 237-247.

[9]Susan Saegert, "Crowding: Cognitive Overload & Behavioral Restraint" in Wolfgang E. Preiser, ed., Environmental Design Research Vol. II, (Stroudsburg, Penn.: Dowden, Hutchinson & Ross, Inc., 1973), p.254-261.

[10]Carol J. Guardo, "Personal Space, Sex Differences and Interpersonal Attraction: in Journal of Psychology, XCII (1976), p. 9-14.

[11]Edward T. Hall, Hidden Dimension, p. 138ff.; Leibman, "Personal Space"; James L. Kuethe, "Pervasive Influence of Social Schemata" in Journal of Abnormal & Social Psychology, LXVIII (1964), 248-254.

[12]David Ley & Roman Cybriwsky, "The Spatial Ecology of Stripped Cars" in Environment & Behavior, VI (1974), 53-68.

violation, are pervasive principles of social organization.[13]

Personal Space:

Much of the research into man's structuring of space has been devoted to the concept of personal space, a remarkably constant behavioural characteristic found by ethologists to be prevalent among animals[14] and described by Hall as a determinant of human behaviour. Personal space is conceived as an invisible expanding and contracting boundary surrounding each individual, a highly elastic territory which moves with the individual defining the normal spacing maintained by the individual in his contacts with others.[15] It has also been interpreted as a body buffer zone which serves as a protection against perceived threats,[16] a separate facet of body image[17] and a mediating cognitive construct to reduce stress.[18]

Physical distance is but one dimension of personal space. Variously described as psychological distance[19] social distance[20] or symbolic distance,[21] it describes a kinesthetic dimension to personal space wherein a synthesis of factors such as touching, eye contact,

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[13]Sommer, Personal Space, 41; Michelson, Behavioral Research, 6.

[14]H. Hediger, Wild Animals in Captivity, (London, Butterworth,& Co., 1950).

[15]Hall, Hidden Dimension; Michelson, Behavioral Research, 209; Sommer, Personal Space, 26.

[16]A. Michael Dosey & Murray Meisels, "Personal Space & Self Protection: in Journal of Personality and Social Psychology XI (1969), 93-97.

[17]J. Mardi Horowitz, Donald F. Duff & Lois O. Stratton, "Personal Space & the Body Buffer Zone" in Proshansky et al eds., Environmental Psychology, 214-220.

[18]Gary W. Evans & Roger B. Howard, "Personal Space" in Psychological Bulletin LXXX (1973), 334-344.

[19]Irwin Altman, The Environment & Social Behaviour (Monterey, Calif.: Brooks/Cole Publishing Co., 1975).

[20]Hall, Hidden Dimension.

[21]Leibman, "Personal Space".

olfaction and voice loudness create a feeling of closeness or distance.[22] These two dimensions are important correlates of social and emotional states for humans which function through the use of verbal, paraverbal behaviours or body configurations to regulate social interaction.[23]

There is ample evidence that personal space is established outside the individual's awareness[24] and that it is learned very early in life paralleling the learning of other social skills.[25] Learning to manage personal space follows a developmental course stabilizing early in life, maximizing at about the time the child enters third grade but not becoming finely honed until he reaches adolescence.[26] Extensive differences in personal space patterning are found between the sexes and findings suggest an earlier development in girls than in boys.[27]

Perhaps the most easily observable property of personal space is the fact that it is a specialized elaboration of culture. Watson, in

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[22]O. Michael Watson, Proxemic Behavior: A Cross-Cultural Study (The Hague: Mouton & Co., 1970), 46-51.

[23]Gary W. Evans & William Eichelman, "Preliminary Models of Conceptual Linkages Among Proxemic Variables" in Environment & Behavior VII (1976),87-116.

[24]Kenneth B. Little, "Personal Space" in Journal of Experimental Social Psychology I (1965), 237-247.

[25]James L. Kuethe, "Pervasive Influence of Social Schemata" in Journal of Abnormal & Social Psychology XLVIII (1964), 248-254; A. M. Fry & F. M. Willis, "Invasion of Personal Space as Function of the Age of the Invader" in Psychological Record XXI (1971), 385-389.

[26]C. J. Guardo & M. Meisels, "Factor Structure of Children's Personal Space Schemata" in Child Development XLII (1972) 1307-1312; Richard M. Lerner, Stuart K. Karabenick & Murray Meisels, "Effects of Age & Sex on the Development of Personal Space Schemata Towards Body Build" in Journal of Genetic Psychology CXXVII (1975), 91-101; R. M. Lerner, "The Development of Personal Space Schemata Toward Body Build" in Journal of Psychology LXXXIV (1973), 229-235.

[27]Robert Sommer, "Studies in Personal Space" in Sociometry XXII (1959), 247-260, Carol J. Guardo, "Personal Space, Sex Differences and Interpersonal Attraction" in Journal of Psychology CLII (1976), 9-14; Daniel Stokols, Marilyn Rall, Berna Pinner & John Schopler, "Physical, Social & Personal Determinants of the Perception of Crowding" in Environment & Behavior V (1973), 87-115.

classifying groups according to proxemic behaviour, found that subjects were most readily divided into contact and non-contact culture groups. Among the contact cultures, whose members are accustomed to using smaller interpersonal distances when interacting with others, were Arabs, Latin Americans and Southern Europeans. Norms and customs of different cultural groups are also reflected in their use of space and mechanisms to regulate personal space. Arabs, for example, do not seem to mind crowds, face each other directly with small interpersonal distances during interaction but show a marked predisposition for high ceilings and few walls in their homes.[28] North Americans depend on architectural features such as closed doors and private rather than shared rooms to delineate space and minimize interaction whereas the English, early conditioned to shared space, have never developed the practice of seeking refuge in their use of space. Rather, they achieve proper spacing between people by a variety of nonverbal and verbal mechanisms such as interpersonal reserve, loudness of voice and eye behaviour.[29] Indeed, culturally determined mechanisms for regulating interpersonal distances are universally present in all societies.[30] However, since such mechanisms are unique to a particular culture and different meanings may be attached to the same elements of proxemic behaviour, interaction between members of different cultures often leads to misunderstandings or misinterpretation.[31]

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[28]Hall, Hidden Dimension, 154-164; O. Watson & T. Graves, "Quantitative Research in Proxemic Behavior" in American Anthropologist LXVIII (1966), 978-980.

[29]Hall, Hidden Dimension, 138-143.

[30]Irwin Altman, "Privacy: A Conceptual Analysis" in Environment & Behavior VIII (1976), 21-23.

[31]Hall, (1966), p. 150; Sommer (1969), p.26; Watson (1970),p.17.

The literature is replete with evidence that personal space markedly influences behaviour and behavioural expectations. Intrusion into the space surrounding an individual or violation of personal space boundaries often creates conflict, tension or discomfort. Intrusions can be physical or they can occur by means of intrusive looks, inappropriate body configurations or even by auditory violations.[32] Defense of personal space is manifest in gestures, posture or the reestablishment of personal space by movement, each of which can be clearly understood by members of the same culture.[33] Since personal space is influenced by social and individual norms, distortion in personal spacing has been associated with abnormality in several forms. Schizophrenia, for example, is characterized by greater interpersonal distance from others and compulsive overconcern with space.[34]

Territoriality:

Closely associated with the concept of personal space is that of territoriality. Until fairly recently, territorial behaviour was associated with animals through memorable examples of territorial pathology in laboratory experiments. Territoriality has been defined as the desire to possess and occupy an area and to defend it against members of one's own species. A complex phenomenon, it has been found in a wide variety of forms across the vertebrate species.[35]

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[32]Leibman, "Personal Space".

[33]Sommer, Personal Space.

[34]Horowitz et al, "Personal Space".

[35]Julian J. Edney, "Human Territories: Comment on Functional Properties" in Environment & Behavior VIII (1976), 31-47.

Clear and unassailable evidence has been presented that territorial behaviour among various species of animals plays a central role in ensuring the propogation of the species, acting as a social regulation mechanism, co-ordinating the activities of and providing cohesiveness to the group and limiting population densities.[36] Disturbances in the territorial distribution and territorial balance of animals results in pathological behaviour and physiological malfunctioning.[37]

Research has shown that although man has developed territorial behaviour analagous to that of animals and many parallels between the two can be drawn, human territoriality is not restricted to geographic locale but has greater complexity and is applied to a broader range of elements.[38] As a human phenomenon, territorial behaviour may be defined as achieving and exerting control over a particular spatial area and is instrumental in the organization of human life and behaviour. Territories themselves function as places in which to exercise everyday behaviours, as places to spend continuous and uninterrupted spans of time allowing for prolonged or extended action or thought, places for carrying out fundamental and essential self-maintenance behaviours, as places to provide privacy and ease, places to ensure intensive interpersonal contact and places which permit the satisfaction of complex psychological

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[36]Hall, Hidden Dimension, 7-22; Proshansky et al eds., Environmental Psychology, 170.

[37]I. Altman & W. W. Haythorn,"The Ecology of Isolated Groups" in Behavioral Science XII (1967), 169-182; J. B. Calhoun, "Space & Strategy of Life" in A. H. Esser, ed., Behavior & Environment (New York: Plenum Press, 1971), 329-387.

[38]Robert Sommer, "Spatial Parameters in Naturalistic Social Research" in Esser, ed., Behavior & Environment, 281-290; Aristide H. Esser, A. S. Chamberlain, E. D. Chapple & N. S. Kline, "Territoriality of Patients on a Research Ward" in Proshansky et al eds., 208-214.

and social drives and motives.[39]

Territorial behaviour in humans involves the active use of places and objects in the environment to provide organization, structure and predictability to mundane interaction thus becoming crucial for the development of more advanced behaviours. It is expressed by defining fixed geographic areas within a physical setting,[40] or by laying claim to things as mobile and impersonal as beds or chairs.[41] It is common for people in their own homes to exhibit territorial behaviour by laying claim to shared spatial areas such as dresser sides or sides of the bed for example. Family members not only invariably lay claim to a particular place at the dinner table, a room of their own or a favourite chair, but accumulate "things" claiming them as their own.

A great deal has been written about ways in which territorial behaviour reduces stress, prevents conflict and limits aggression. Altman and Haythorn's (1967) classic study of sailors in confinement indicated that territorial behaviour toward pieces of furniture functioned to maintain a relatively stable dominance hierarchy thereby ensuring social order. Sommer maintains that territorial behaviour limits aggression by providing the individual with knowledge of the possible consequences of several alternative behaviours. Studies of deviant adolescents and urban crime have led many scholars to hypothesize that the design of some public and semi public areas make them

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[39]Edney, "Human Territories".

[40]Franklin D. Becker & Clara Mayo, "Delineating Personal Distance & Territoriality" in Environment & Behavior III (1971), 375-380.

[41]Altman & Haythorn, "Isolated Groups"; Fred I. Steele, Physical Settings & Organizational Development (Reading, Mass.: Addison-Wesley Publishing Co., 1973); Sommer, "Studies in Personal Space".

non-defensible territories with a resultant increase in aggressive acts and vandalism.[42] Altman (1976) cites studies conducted by O'Neill and Paluch (1973) and Paluch and Esser (1971) which demonstrate that the introduction of identifiable territories in a group of retarded boys reduced the complexity of their world allowing them to achieve some control over their lives thereby reducing aggressive behaviour.

Territorial behaviour has been credited with contributing positively to the individual's self esteem and self-identity. Basic to the development and maintenance of a strong personal identity and the reduction of the ambiguity of anonymity is the acquisition of places and things, each of which gives the individual physical uniqueness, a sense of importance and a vehicle for self-expression. The marking of personal territories makes them distinctive and identifiable lending the occupants geographical individuality and spatial distinctiveness. Removal or lack of this concept of possession has demonstrable effects on immediate behaviour and, cumulatively, on the personality.[43] Laying claim to objects and places in conditions of social isolation or declarations by children of sole ownership of toys or spaces when self identity is threatened ("You can't walk on my sidewalk" or "You can't play with my toys") are manifestations of this aspect of territoriality. Group identity, too, is fostered simply by sharing a locale with other individuals by inbuing a sense of association and unity on the occupants and facilitating social bonding.[44]

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[42] David Ley & Roman Cybriwsky, "The Spatial Ecology of Stripped Cars" in Environment & Behavior VI (1974), 53-68; O. Newman, Defensible Space (New York: Macmillan, 1972).

[43] Alexander Kira, "Privacy & the Bathroom" in Proshansky et al, eds., 269-275.

[44] Edney, "Human Territories".

Crowding:

A third concept relevant to the study of environment and behaviour is that of crowding. Crowding has been defined as a personal and subjective reaction, a form of psychological stress to the presence of other people which places restrictions on the individual's range of behavioural choice.[45] Not to be confused with conditions of high density, which, in some circumstances, is a sought after situation with positive effects, crowding is a function of intraindividual, interpersonal and cultural variations and is considered to have a deleterious effect on those who perceive themselves to be in a crowded situation.[46] Just as there are cultural and subcultural differences in other aspects of the use of space, there are like differences in acceptable levels of crowd density.[47]

In general, the experience of crowding, especially under conditions of high density, involves aversive psychological as well as physiological states. Proshansky et al contend that conditions of high density have aversive effects on behaviour when the individual experiences a feeling of loss of control because restrictions have been placed on the range of behavioural choice. Crowding, they argue, is a psychological as well as social phenomenon which has both immediate and long range detrimental

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[45]Sang Chin Choi, Ahmad Mirjafari and Herbert B. Weaver, "The Concept of Crowding: A Critical Review and Proposal of an Alternative Approach" in Environment & Behavior VIII (1976), 345-361.

[46]W. Griffitt & R. Veitch, "Hot & Crowded: Influences of Population Density & Temperature on Interpersonal Affective Behavior" in Journal of Personality & Social Psychology XVII (1971), 92-98; Allen I. Schiffenbauer, Janet E. Brown, P. L. Perry, L. K. Shulack, A. M. Zanzola, "The Relationship Between Density & Crowding: Some Architectural Modifiers" in Environment & Behavior IX (1977), 3-14.

[47]Hall, Hidden Dimension.

effects on the individual. The manner in which space is organized, the purposes for which it is designated and the type of activities which take place in it are all factors which can contribute to an alleviation of the sense of being crowded. Stokols[48] maintains that high density affects behaviour only if it produces a psychological experience of crowding through an interaction of physical, social and personal variables when the mere anticipation of social interference from others sensitizes him to the constraints of limited space. Conditions of high density, he claims, pose a great range of potential threats to emotional and physical well being. Altman posits that high density situations create a potentially overwhelming number of stimulation contacts and evolve a sense of a need for protection from the expectation of these excessive demands. Saegert[49] has shown that increasing the number of people in a situation increases its cognitive complexity for any one individual resulting in perceptual behavioural deficits due to excessive environmental stimulation. Schiffenbauer has argued that density affects behaviour only when the attainment of some valued goal is interfered with. Experiments carried out by Freedman et al[50] corroborate the fact that crowding has substantial effects on human behaviour and indicate that the effects are not only complex but sexually specific.

Research indicated that different coping behaviours have

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[48]Daniel Stokols, "The Experience of Crowding in Primary & Secondary Environments" in Environment & Behaviour VIII (1976), 49-81

[49]Susan Saegert, "Crowding: Cognitive Overload & Behavioral Restraint" in Preiser, ed., Environmental Design Research, 254-261.

[50]Jonathon L. Freedman, Alan S. Levy, Roberta Welte Buchanan & Judy Price, "Crowding & Human Aggressiveness" in Journal of Experimental Social Psychology VIII (1972), 528-548.

developed in response to high density and crowded situations. Acceptance, one form of adaptation, is not to be construed as absence from discomfort. De Long[51] has concluded that optimum coping behaviour is to restrict personal contact to a limited number of people by exhibiting a relative indifference to a majority of them. Subjects of Sommer's library studies displayed psychological withdrawal, not unlike that of many crowded subway riders. Passivism and withdrawal were common coping behaviours in densely populated hospital wards studied by Ittelson et al.[52] The same patients within the setting of a small single room were more active both individually and socially.

An extensive review of the literature on overcrowding the developing organism by Evans and Eichelman[53] led them to conclude that the young organism is more suseptible to the effects of high density than adults especially in such areas as learning decrements. High density classrooms, they state, present a child with expectations for social exchange but surround those expectations with ambiguity with regard to potential behavioural interaction. It is not surprising, then, that patterns of decreased involvement with others are common findings under conditions of high density.[54]

Privacy:

Perhaps the most pervasive of all the concepts discussed thus

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[51] A. J. DeLong, "Dominance-Territorial Relations in a Small Group" in Environment & Behavior II (1970), 170-191.

[52] William H. Ittleson, K. A. Franck & T. J. O'Hanlon, "The Nature of Environmental Experience" in Wapner et al eds., Experiencing the Environment.

[53] Gary W. Evans & Wm. Eichelman, "Preliminary Models of Conceptual Linkages Among Proxemic Variables" in Environment & Behavior VIII (1976), 87-116.

[54] S. Milgram, "The Experience of Living in Cities" in Science CLVII (1970), 1461-1468.

far is that of privacy. Although it has been treated as a separate and discrete component in the study of environment and behaviour, some scholars point to it as a central causal and integrative concept at the core of the issues and mechanisms of behaviour directed toward achieving optimum personal space, territoriality and freedom from crowding.[55]

Westin,[56] in his monumental study on privacy, defined it as "the claim of individuals, groups or institutions to determine for themselves when, how and to what extent information about them is communicated to others." He cites the four functions of privacy as the development of personal autonomy or a sense of individuality and conscious choice, an emotional release which permits individuals to relax from their social roles, a self-evaluation which allows integration and assimilation in the light of the continuing stream of information being received, and limitation of communication or regulation of interaction with the social environment. Proshansky et al see privacy functioning to increase the range of options open to an individual thus providing the individual with the opportunity for appropriate behavioural sequences. Bates (1964) compares the operation of privacy to a necessary buffer between social pressures and an individual's response to them. Others have emphasized Westin's personal autonomy function by stating that in a conceptual as well as an operational sense, privacy is basic to the development and maintenance of strong personal identity.

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[55]Altman, Environment & Social Behavior.

[56]Alan F. Westin, Privacy & Freedom (New York: Atheneum Publishers, 1967).

[57]Kira, "Privacy & Bathroom".

Altman sees privacy as a dialectic process, a balancing of opposing forces, "a changing self other boundary regulation process" in which a person or a group sometimes wants to be separated from others and sometimes wants to be in contact with others. Indeed, many writers point to the need to maintain a balance between social isolation and stimulus overload.[58] Such a balance can be achieved only by having control over the amount and the quality of visual and auditory stimuli sent and received.[59]

All human cultures have mechanisms for achieving desired levels of privacy, regulating interaction and avoiding inappropriate intrusion. Such behavioural mechanisms may be overt and easily recognizable such as verbal behaviour or content of speech, or paraverbal behaviour including tone, inflections, voice intensity and pitch. More subtly, withdrawal into privacy may be recognized in environmentally related behaviours such as personal spacing and territorial responses using the physical setting which include furniture arrangements and using doors and windows to provide behavioural clues, body configurations such as facial expressions and gestures, cultural conventions such as changing the subject or excluding others present in private jokes or words. These behavioural mechanisms are culturally determined and culturally specific. Altman describes a variety of cultural regulatory mechanisms used by diverse cultures ranging from the Mehinacu of central Brazil,

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[58] J. F. Wohlwill, "Human Adaptation to Levels of Environmental Stimulation" in Human Ecology II (1974), 127-147; P. Sivadon, "Space as Experienced: Therapeutic Implications" in Proshansky et al eds., 409-419; A. Bates, "Privacy-A Useful Concept?" in Social Forces XLII (1964), 429-434.

[59] Steele, pg.30.

the Tuareg of Northern Africa, the Bali and Javanese of Indonesia to the strip teaser of western culture. Each exhibits multilevel mechanisms for the regulation of privacy leading Altman to hypothesize that attainment of a desired degree of privacy is a cultural universal. A similar conclusion is reached by Hall who adds that cultural specificity of privacy related behaviours leads to misinterpretation and misunderstanding in interaction between members of different culture groups.

Although failure to regulate interaction and achieve the desired amount of privacy may simply cause annoyance or discomfort for short periods of time, the costs of this lack may be high over an extended period of time. Too little or too much privacy results in erratic and deviant role performances, stress, tension and anxiety, and reduced efficiency and psychic energy. And, although individuals may be capable of adaptation to extreme cases of privacy deprivation, the deleterious physical, psychological and social effects on the individual are great.[60]

Physical Design and Spatial Behaviour:

Very early in life, children display very sophisticated forms of spatial learning and structured concepts of the use of space.[61]

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[60] R. Dubos, So Human an Animal (New York: Charles Scribner, 1968).

[61] David Stea & Susan Taphanel, "Theory & Experiment on the Relation Between Environmental Cognition" in David Canter & Terence Lee eds., Psychology & the Built Environment (Kent: Whitefriars, 1974).

Physical settings and the objects within them generate emotional and behavioural messages and evoke complex reponses in the individual in the form of feelings, attitudes, values and behavioural expectancies.[62] Regulation of physical space serves as a reflection of socialization practice and a socializing agent for children. Maslow's[63] theory of basic needs, Westin's analysis of the functions of privacy and observations of activities in different contexts have led some researchers to a categorization of the functions of physical settings. First, settings provide security and shelter; second, they permit and control social interaction by the arrangement of space and facilities; third, settings are replete with symbolic identification imbuing recognition and status on their occupants; fourth, they provide for task completion by the provision of facilities appropriate to carrying out specific tasks in a particular setting.[64]

Perhaps the most readily observable of the functions of a physical setting is that of providing shelter for its occupants. Settings provide for shelter and protection from physical elements as well as from those distractions and intrusions which prevent the individual from attaining the desired level of privacy. Studies have shown that settings which provide thermal comfort and adequate light have a positive effect on task performance. The reported effects were statistically very small,

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[62] Robert Sommer, Design Awareness (San Francisco: Rinehart Press, 1972), p. 43.

[63] A. H. Maslow, Motivation & Personality (New York: Harper & Ross, 1954).

[64] Daniel Stokols, "The Experience of Crowding In Primary & Secondary Environments" in Environment & Behavior VIII (1976), 49-81.

however, except in the case of great extremes or variations.[65] Protection from visual and auditory distractions is a function which has a profound effect on behaviour within the setting. Evans and Eichelman, in reviewing studies dealing with the impact of noise on task performance, found that, on easy or boring tasks, noise produced no change in task performance, but on more complex tasks or tasks that required concentration, deterioration was evident when noise was an added element. And, although immediate adaptation seemed to occur, poorer performance was the norm under such conditions. When individuals perceived that they had control over the distractions, performance was affected significantly less. Goffman[66] describes the adverse effects of thin partitions between apartments or attached housing, partitions which, although they block visual intrusions, do little to keep the occupants from being overheard.

Visual distractions seem just as significant in their effect on task performance. Sommer maintains that a major source of accidental intrusion in a library setting occurred when eye contact was made during breaks in reading or study, and, Hall relates examples of cultural visual intrusion with particularly detrimental effects.[67] Eye contact indicates engagement with another person in interaction, and unwanted or accidental eye contact has been shown to be distracting and an

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[65] M. A. Humphreys, "Relating Wind, Rain & Temperature to Teachers' Reports of Young Children's Behavior" in Canter & Lee eds., Psychology & Built Environment; D. A. McIntyre & I. D. Griffiths, "The Thermal Environment: Buildings & People" in Canter & Lee eds.

[66] E. Goffman, The Presentation of Self In Everyday Life (Garden City: Doubleday Anchor, 1959).

[67] Hall, p. 132-134.

unwelcome intrusion.[68] Besides its protective and sheltering function, a physical setting must provide a sense of "psychic" security to its users, a sense of being at ease, comfortable and secure and not being overwhelmed by one's surroundings. Area shape and size have a significant effect on the occupant's sense of security and on his performance within that area. Generally speaking, an irregularly shaped area,[69] one whose external boundaries are permeable or not clearly defined,[70] a large homogeneous area[71] or multi-purpose rooms[72] seem to create a sense of ambiguity and make marking out and defense of a territorial space difficult. This, in turn, leads to stressful feelings, irritation and a variety of anti-social behaviours.[73]

Man's need for privacy or the ability to retreat into privacy when the situation demands it either in a real physical sense or in culturally accepted behaviours may serve as a causal factor in physical setting preferences. Steele maintains that when social interaction cannot take place with a modicum of privacy but always must occur in

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[68]Darwyn E. Linder, "How Much Do We Say Without Speaking?" in Linder, ed., Psychological Dimensions of Social Interaction; M. Argyle & J. Dean, "Eye Contact, Distance & Affiliation" in Sociometry XXVIII (1965), 289-304.

[69]Sommer, Personal Space.

[70]David Stea, "Space, Territory & Human Movements" in Proshansky et al, Environmental Psychology, 37-42.

[71]Peter Manning, "Office Design: A Study of Environment" in Proshansky et al, 463-483.

[72]Kira, Privacy & Bathroom.

[73]Clifford B. Moller, Architectural Environemnt & Our Mental Health (New York: Horizon Press, 1968).

the presence of others not of the same group, the individual may experience the stressful feeling of always performing for an audience. Goffman describes settings used by groups as being divided into front-stage and back-stage areas. Front-stage areas are those in which group members are expected to perform particular roles - waiters in the dining room of a restaurant or salespeople at the counter of a retail store, for example. Back-stage areas, such as the kitchen or a staff lunch room, provide areas where role performers can relax and relieve tension, dropping their assigned roles for a while. When both front and back stage areas are discrete and carefully delineated, they function to provide protection from over-stimulation and provide needed privacy. But when areas are structured so that boundaries are ambiguous, when the public must pass through the kitchen to reach restrooms or staff must eat in a public lunchroom, tensions have been found to be higher, task performance poorer.

The size and the scope of an area has also been found to be a determinant of the behaviour of the occupants. Recent studies of plant and office planning and landscape have been particularly concerned with designing spaces which would increase efficiency and productivity in organizations. A general consensus seems to have been reached that there is a certain amount of discomfort associated with sharing a large open space with many people for a large part of each working day.[74] Planning for flexibility and ease of work flow, many offices have been designed without subspace defining walls and amorphous arrangements of furniture. Areas have been differentiated into delineated space, space that is

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[74]Stea, "Space, Territory & Human Movements".

bounded or contained within walls or barriers, and open space suggesting inward and outward freedom of movement and spatial penetration.[75] An examination of work area size preferences indicated that managers preferred and cited advantages for large open working areas for employees whereas actual users, including supervisory personnel, expressed a preference for smaller delineated areas and confessed to feelings of self-consciousness, unease and behavioural constraint in larger spaces shared by more people.

Sommer maintains that it is easier to defend a small room than a large one against territorial intrusion but that the erection of privacy barriers in a larger area to lessen the chances of visual intrusion will protect personal space and eliminate much psychological discomfort. A row of filing cabinets, for example, served as a physical territorial marker for a group of filing clerks. Relocation of the cabinets rendered the boundaries of the territory amorphous and permeable and resulted in a marked alteration in the behaviour of the clerks. Whereas the group had been characterized by a "team spirit" and effective and efficient task performance before the relocation, the environmental change produced greatly decreased morale and a catastrophic reduction in work efficiency. It has been found that barriers, while decreasing communication between different groups, increase it within the group. By decreasing the number of groups with which interaction is possible, physical closeness does not encroach upon personal space norms. More intense interaction with the members of one's own group allows more intimate contact and promotes cohesiveness and a sense of

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[75]Robert Beck, "Spatial Meaning & The Properties of the Environment" in Proshansky et al eds.

being part of the group thus permitting physical closeness without promoting stress and increasing the upper limit of comfortable room density.[76] A unique feature of North American culture has been the use of doors and furniture arrangements to provide screening and increase one's perception of being able to retreat into privacy. One feature of open office design often cited as a detriment to concentration is the lack of a door.[77] Closed doors have become signals that those behind the closed door do not wish accidental interaction with others. An open door, on the other hand, both physically and semantically, has come to mean just the opposite, an invitation to enter. Nowhere is this more obvious than in the glass-walled office of the bank manager. Although his actions may be visible to others, and, although the glass walls provide no visual screening, a closed door becomes a symbol for work that requires concentration and those desiring interaction should be certain of observing cultural conventions for intrusion behaviour.[78]

Until the eighteenth century, rooms in European houses had no specialized function, no specialized places for different activities.[79] The introduction of hallways and corridors in architecture made

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[76] R. Blake, C. C. Rhead, B. Wedge & J. S. Mouton, "Housing, Architecture & Social Interaction" in Sociometry XIX (1956), 133-139; Sherrill Cleland, The Influence of Plant Size on Industrial Relations (Princeton: Princeton University Industrial Relations Section, 1955).

[77] Steele, Physical Settings.

[78] Erving Goffman, Behavior In Public Places (New York: The Free Press, 1967).

[79] Edward T. Hall, "Environmental Communication" in Esser ed., Behavior & Environment, 247-256.

possible definition by function so that rooms became bedrooms for sleeping, kitchens for cooking and so on. The specialization of rooms brought with it a concomitant change in familial organization. The subdivision of a house into separate rooms created the physical and psychological requirements to regulate privacy and marked out territories for specific functions organizing and simplifying the number of appropriate behavioural sequences to be followed. The nuclear family and the concept of childhood were cultural patterns that developed and began to stabilize as a result of this architectural innovation. Such trends help to illustrate how the individual's definition of a situation becomes a key aspect in the relationship between environment and behaviour.[80]

Room specialization has become, for North Americans and most Europeans, a cultural norm and multi-purpose rooms intended to encourage unity and cohesiveness have, in many instances, weakened the individual's sense of self-identity and produced irritation and aberrant behaviour. Slum housing developments throughout our culture are prime examples of the deleterious effect of multi-purpose rooms and the pressures of the constant presence of others in the household on an individual's self-respect and sense of status. Problems spawned by the importation of Japanese house style to America with its ambiguous spaces, flexibility and removable partitions have been attributed to the unfeasibility of trying to combine the aesthetic system of one culture with the environmental-value system of another. American traditions and patterns of

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[80] I. Altman & E. Lett, "The Ecology of Interpersonal Relationships: A Classification System & Conceptual Model" in J. E. McGrath ed., Social & Psychological Factors in Stress (New York: Holt, Rinehart & Winston, 1970).

living are such that the flexibility provided was rarely utilized and spatial mores were violated resulting in behavioural problems.[81] Occupants of railroad-type apartments, on the other hand, large single rooms which served many purposes, experienced improvement in study habits, discipline and, in one instance, the remission of a serious speech disorder, when these flats were remodeled with a centre hall and separate rooms.[82]

Physical settings and the objects within them convey symbolic representations which people identify as preconditions for their own behaviour.[83] This function of settings can most readily be understood in the context of "projecting an image". The physical facilities of an organization are its most concrete and visible characteristic and the most immediate means of communicating information about itself to those both inside and outside of the organization. Few people would go to the trouble of checking balance sheets or reading financial reports about an organization, yet the building in which it is housed and the space that it occupies can impute an image of reliability and success about its operations. One evaluates himself in terms of his surroundings,[84] therefore, the behaviour of both the organizational member using the facilities and those outside the organization interacting with it will be affected.

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[81] Raymond G. Studer & David Stea, "Architectural Programming, Environmental Design & Human Behavior" in Journal of Social Issues XXII (1966), 127-136.

[82] Hall, "Environmental Communication".

[83] William Michelson, Behavioral Research Methods in Environmental Design (Stroudsburg: Dowden, Hutchinson & Ross Inc., 1975).

[84] Alvin L. Schorr, "Housing & Its Effects" in Proshansky et al eds., 319-332.

Physical settings also communicate information about the hierarchical structure of an organization and the status of members within it. An individual's self-esteem is strongly affected by the spatial conditions of the structure he occupies and his evaluation of these conditions as well as that of others, will affect his status. Being less visible to others usually signifies higher status. In many organizations, private offices are prerogatives of administrative personnel whereas large communally shared spaces are used by the rank and file. Private washroom facilities are set aside for executives and attaining a key to the executive washroom has become a culturally determined symbol of success. In both man and sub-human animals there is a direct relationship between territory size and status - the higher the status, the larger the personal territory. In human society, individuals of high status generally possess more space in the form of larger homes and home sites and greater spatial mobility. More space is allotted to air travellers in first class than in tourist; higher status patients in hospitals opt for private rooms; higher echelon political figures have larger offices than subordinates and the "star" has a large private dressing room. Besides having better, more private and larger spaces in which to move about, higher status individuals generally have a greater range of territory over which they can move. Children in our society, for example, are considered to be of lower rank than adults, hence have control over a smaller territorial range in their homes than do their parents. A parent's entering his child's bedroom is an acceptable behavioural norm. Children, on the other hand, do not have the right to enter their parents' bedroom or their father's den without knocking first.

Sommer has pointed out that status hierarchies are accompanied

by complex spatial norms. "There are many places where a factory supervisor cannot go without the workers feeling he is spying on them. Officers keep out of enlisted men's quarters except on inspection. School administrators stay out of classrooms unless there is some emergency or a teacher asks them to visit."[85] Room position is a well used status indicator in many business organizations. In an investment firm described by Steele, for example, lowest status clerical workers occupied the front rows of a large room with the more prestigeous workers ranked heirarchically behind them. Many modern office buildings are designed so that higher ranked executive offices can be reached only by a long walk and/or elevator ride to make visitors as well as workers feel the difference in scale between these executives and their own lack of importance.

Several studies have demonstrated that physical settings and spatial location within them influence a person's status and determine social interaction. Osmond[86] coined the useful terms sociofugal and sociopetal to differentiate between physical settings which encourage or are conducive to interaction and those that, by their very set up discourage and inhibit interaction. A sociopetal room orients everyone toward the center making retreat difficult and interaction inevitable. A sociofugal room, on the other hand, usually a large amorphous area, is designed so that the formation of stable relationships is prevented. Rearrangement of physical objects within the setting or redesign of the area has been shown to be effective in making a sociofugal area into a

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[85] Sommer, Personal Space, p. 19.

[86] H. Osmond, "Function As The Basis Of Psychiatric Ward Design" in Proshansky et al.

sociopetal one, greatly influencing both quantity and quality of interaction patterns within it.[87]

Seating arrangement functions to regulate interaction in small groups because of the variations it produces in physical distance and visual accessibility between the members of the group. At rectangular or square tables, corner to corner and across the table seatings are the loci of most interactions. In circular seating arrangements more interaction is the norm between people who face each other than between those in adjacent seats.[88] In row-and-column seating patterns, in auditoria or classrooms for example, interaction rates are highest among persons seated up front and in the middle.[89] Occupants of seats the furthest away from the front most and centermost point in a room are the least likely to take part in verbal interaction.[90] Seating preferences have been detected among those wishing to avoid or engage in interaction leading some researchers to conclude that, consciously or unconsciously, seat choices made by individuals represent an effort to cope with the physical and behavioural situation as they have defined it[91] and seating arrangements which do not provide ample choices for withdrawal or interaction may cause discomfort and psychological stress.[92]

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[87] Ittleson et al, "Nature of Environmental Experience".

[88] A. P. Hare & R. F. Bales, "Seating Position & Small Group Interaction" in Sociometry XXVI (1963), 480-486.

[89] Sommer, "Studies in Personal Space", p. 247-260.

[90] Mele Koneya, "Location & Interaction In Row and Column Seating Arrangements" in Environment & Behavior VIII (1976), 265-282.

[91] Altman & Lett, "Ecology of Relationships".

[92] Koneya, "Location & Interaction".

Spatial and role relationships have also been demonstrated to determine leadership emergence in small groups. Leaders of groups emerge from end positions at rectangular tables and foremen of juries are picked from end seats more often than would be expected to happen by chance.[93] In seating arrangements in which more persons were on one side of the table than on the other, the leader emerged from the side with the fewer people.[94] In Y-shaped, wheel, or incomplete circle communication networks, the leader invariably emerged from the centre or the hub.[95] Where leaders had already been appointed, they tended to gravitate toward the end of tables, but when the leader was not in an end position, others sat opposite rather than alongside. Such findings lead Sommer to postulate that space assignment not only indicates the role that people are expected to play but also make it difficult for persons in other locations to emerge as leaders of the group.

A further determinant of social interaction within a physical setting is group size. Patterns of decreased involvement and perceptual and behavioural deficits under conditions subjectively defined as high density situations have been discussed above. Edwin P. Willems[96] in reviewing research on group size, presents voluminous evidence to show negative correlation between group size and participation and involvement of individuals. With increasing size of groups, the proportion of members who are non-contributors increases and the most active members become

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[93] Charles D. Ward, "Seating Arrangement & Leadership Emergence In Small Discussion Groups" in Journal of Social Psychology LXXIV (1968),83-90.

[94] Watson, Proxemic Behavior.

[95] G. Hearn, "Leadership & The Spatial Factor In Small Groups" in Journal of Abnormal & Social Psychology LIV (1957), 269-272.

[96] Edwin P. Willems, "Review of Research" in Barker & Gump, Big School, Small School.

more and more differentiated from the group. On the whole, members of large groups are less active, less responsible, less effective and less influential than small ones. Individuals within large interacting groups expressed more dissatisfaction and less consensus whereas members of smaller groups had more positive evaluations and satisfactions to report. Less turnover and absenteeism was reported in small industrial plants, even in instances where groups within the plant, for all intents and purposes, worked independently of one another. This has been explained by the existence of an intangible personal approach, supervisors having fewer workers with whom to interact directly creating more intimate managerial-employee relations and greater rapport.[97] Institutional studies have demonstrated that a greater proportion of individuals in small schools, for example, become involved in activities than do those in large schools.[98] Osmond has shown that smaller rooms containing smaller groups are more therapeutic in mental hospitals than the large ambiguous structures with their congregations of mentally sick people.

Human territorial behaviour has been instrumental in defining various role relationships and establishing and maintaining a sense of personal identity. In many human cultures, certain behaviours habitually correspond with certain types of places. Room specialization, for example, provides order to human interaction by making behaviours in a particular area more predictable and allows the individual to seek or to avoid a particular type of behaviour by changing location. As has been pointed out, territory can also dictate a hierarchy of social procedure providing

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[97] Cleland, Influence of Plant Size.

[98] Barker & Gump, Big School, Small School.

structure in interpersonal events occurring on a territory. There can be no doubt that the individual benefits from this kind of order.[99]

Territorial behaviour towards physical objects is a readily observable phenomenon functioning to promote order in interaction and environmental security, enhance the individual's sense of self-identity and reduce conflict and aggressive behaviour. Furniture, in particular, has symbolic significance as well as functional significance for people of all ages.[100] Territorial behaviour toward articles of furniture exhibited in experiments with subjects under conditions of isolation is indicative of the psychological need for persons sharing the same physical area to appropriate and control articles such as beds, chairs and even position at table. The behaviour of ward patients in hospital settings changed perceptibly when furniture which allowed them to display territorial behaviour was introduced into the setting. Increased opportunity for territorial behaviour proved to be a therapeutic manipulation of the physical setting. Territorial claim to favourite chairs in a study of seventeen British old folks' homes served to reinforce informal institutional rules and promote a sense of identity and belonging. Taking away personal possessions of mental patients has been shown to be anti-therapeutic and the evidence of compensatory territorial mechanisms in such institutions may be indicative of attempts to compensate for the loss of self image. Since material possessions are so large a part of the individual's conception of himself, being stripped of them is to be attacked at the

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[99] R. G. Barker, "Explorations in Ecological Psychology" in American Psychologist XX (1965), 1-14.

[100] Elizabeth Richardson, "The Physical Setting & Its Influence On Learning" in Proshansky et al, 386-397.

deepest layers of personality. Some writers have postulated that such social definitions of material deprivation reinforce alienation of inmates in prison and lead to extreme examples of territorial behaviour.[101]

Man repeatedly displays a dependence on territorial behaviour even in situations where the spatial territory to be defended is temporary. In settings where the individual lays claim to a territory for a short period of time, particularly in public areas, he is prone to mark out his territory as a means of asserting his claim to it and defending it against intrusion. Studies of public areas have shown that books, coats and even papers are effective markers used in delineating one's territory and are effective means of retaining that territory even when one is not physically inhabiting it.[102] A common practice among patrons of movie houses is laying claim to a territory by draping a coat on an adjacent chair, handbag and popcorn on another. Intrusions into marked territories are invariably met with preventive or reactive responses on the part of the occupant of the territory.

Individuals also lay claim to public territories by habitually occupying the same territory a number of times. Patrons at a restaurant may have "their" table and be disconcerted when it is occupied by someone else. Students at every level display a consistency in gravitating toward the same seats or desks in any type classroom even after occupying them only once.[103] Children territorialize public areas by means of

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[101] Gresham Sykes, "The Prisoner's Status As Conveyed By The Environment" in Proshansky et al.

[102] Franklin D. Becker & Clara Mayo, "Delineating Personal Distance & Territoriality" in Environment & Behavior III (1971), 375-380.

[103] DeLong, "Dominance-Territorial Relations".

clubhouses and street corner societies. Churchgoers consistently sit in the same pew, the first patrons in a restaurant face outward with their backs to the wall and the list is endless. But the fact remains that territorial behaviour in its many forms is a coping behaviour, an attempt on the part of man to bring order and predictability to his environment.

There can be no question that the structure of space is related to the structure of behaviour and that the maintenance of spacing is as important a variable in human behaviour as it is in that of animals. Man, unlike other animals, is in the unique position of being able to reshape his environment and is doing so at an uprecedented scale. Despite the fact that the physical setting sets the framework for a complex series of relationships and attitudes, relatively little emphasis is given by the design professions to the activities taking place within the setting. The physical structure is a symbolic extension of its occupants, a construct which regulates social interaction, a factor in increasing or minimizing stress and a reflection and influence on the value systems which organize the activities of the individuals who inhabit it.

CHAPTER III

Towards A Model Of Organizational Behaviour

Environment & Behaviour:

Before attempting to construct a model depicting the relationship between environmental phenomena and organizational behaviour, it is necessary to reexamine the conception of man and environment implicit in its creation. The environment may be seen as a complex intercommunication system, an intricate and dynamic whole whose elements are interdependent and closely intertwined. Behaviour cannot be wholly understood independent of its intrinsic relationship to each of the elements but is to be seen as a product of the complex interplay of the elements on several levels of behavioural functioning. The different levels of behaviour, each of which is capable of modifying the other, fit together as a system, acting as a coherent whole. Underlying this view of environment is what Altman refers to as a systems model of man wherein individual-environment relations are seen as an ecological system.

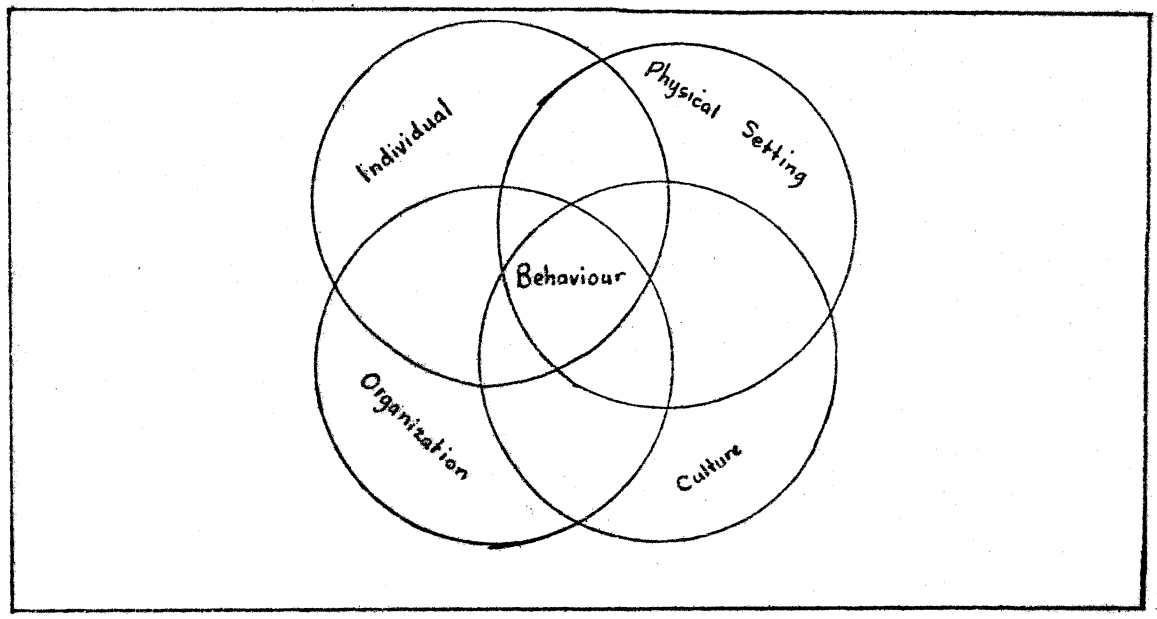


Fig.1 : Environment-Behaviour System

Organizational behaviour can be seen to be a product of the dynamic interaction of four variables: the individual, the organization, the physical setting and culture. Griffiths (1964) has described organizations as systems having within them subsystems and as existing in a suprasystem. Implicit in the diagrammatic illustration (see Figure 1), however, is the idea of organization not as an encompassed whole but as a viable and dynamic part of an intricately balanced system. An organization may be defined as a set of technological processes and organizational structures which reflect different kinds of relationships between people and between people and their work. Both process and structure are concerned with such behaviour as goal setting, decision making, communication, authority, role relationships, conflict resolution and task accomplishment. But, an important component of the organization is its human resources, individuals with their values, skills and needs, which, when combined with process and structure in a meaningful way enable the organization to attain its goals. Just as organizational processes and structures cannot be divorced from the human element, culture, or the acquired knowledge of individuals, must also be seen as an integral part of the system. Observation, selection and structuring of information may be individual processes, but these processes are culturally defined. Culture also determines conception of the physical setting, the part of the environment in which organizational behaviour occurs. It provides identity, orientation and significance for elements within the environment, provides clues as to the kind of social order maintained in a particular physical setting and suggests courses of overt behaviour within it. What individuals know and believe about the physical setting affects their actions with respect to that setting enabling them to better understand

their own and other people's actions.

Although the boundaries of the various elements are suggested by overlapping circles, it must be pointed out that the area of overlap, hence, the effect of one variable on the others is not consistent but changes with situation or time. For example, culture, or the process of enculturation, may be the most pervasive of the variables in the very young and may possibly be the most important determinant of behaviour. As individuals grow through time, however, there can be no question of their effect on the culture which they, as individuals in groups, help to shape. The behaviour of an individual in an organization is influenced by the needs, drives, values, mores and talents which culture and enculturation have helped to shape. He shapes his official role within that organization and is in turn shaped by it. Similarly, the organization itself is influenced and shaped by culture and by the dynamic interaction of the varying psychological make-ups of its individual members. Not the least of these variables is physical setting, which is an interdependent variable influencing and being influenced by each of the other three. Just as the form of physical settings evolves under the influence of change in a society's culture, so too a society's customs and mores are shaped, supported and modified by the settings which house them.

Physical Setting & Organizational Behaviour:

Although the research of behaviouralists has clearly indicated that each of the variables within the "environment-behaviour system" influence one another, organizational theorists have long pointed to an inherent conflict within that system. Jacob W. Getzels and Egon G. Guba have described organizational behaviour in terms of that conflict.

They have postulated that organizational behaviour is a product of the inevitable conflict between the individual and the organization. The Getzels-Guba model of the organization as a social system presents a dichotomous relationship between individual needs on the one hand organizational demands on the other. They suggest that the task of the administrator within the organization is to control the fundamental conflict between the two dimensions and to concern himself with motivation of organizational members toward acceptable goal behaviour.

Theories of human motivation have served for many years as a basis for organizational theory. Maslow points to a hierarchy of needs as the motivational force which directs individuals to work towards the goals of an organization. Once needs of a lower order are adequately met, motivation is derived from the needs at the next level of the hierarchy. Physiological needs are of the lowest order while the need for security is the second. It is not difficult to see the lower orders of Maslow's hierarchy of needs as the force behind the drive for higher wages, better working conditions and tenure within the educational organization. But it is to the highest order that the organization must address itself if the individual member is to be motivated to satisfy organizational demands.

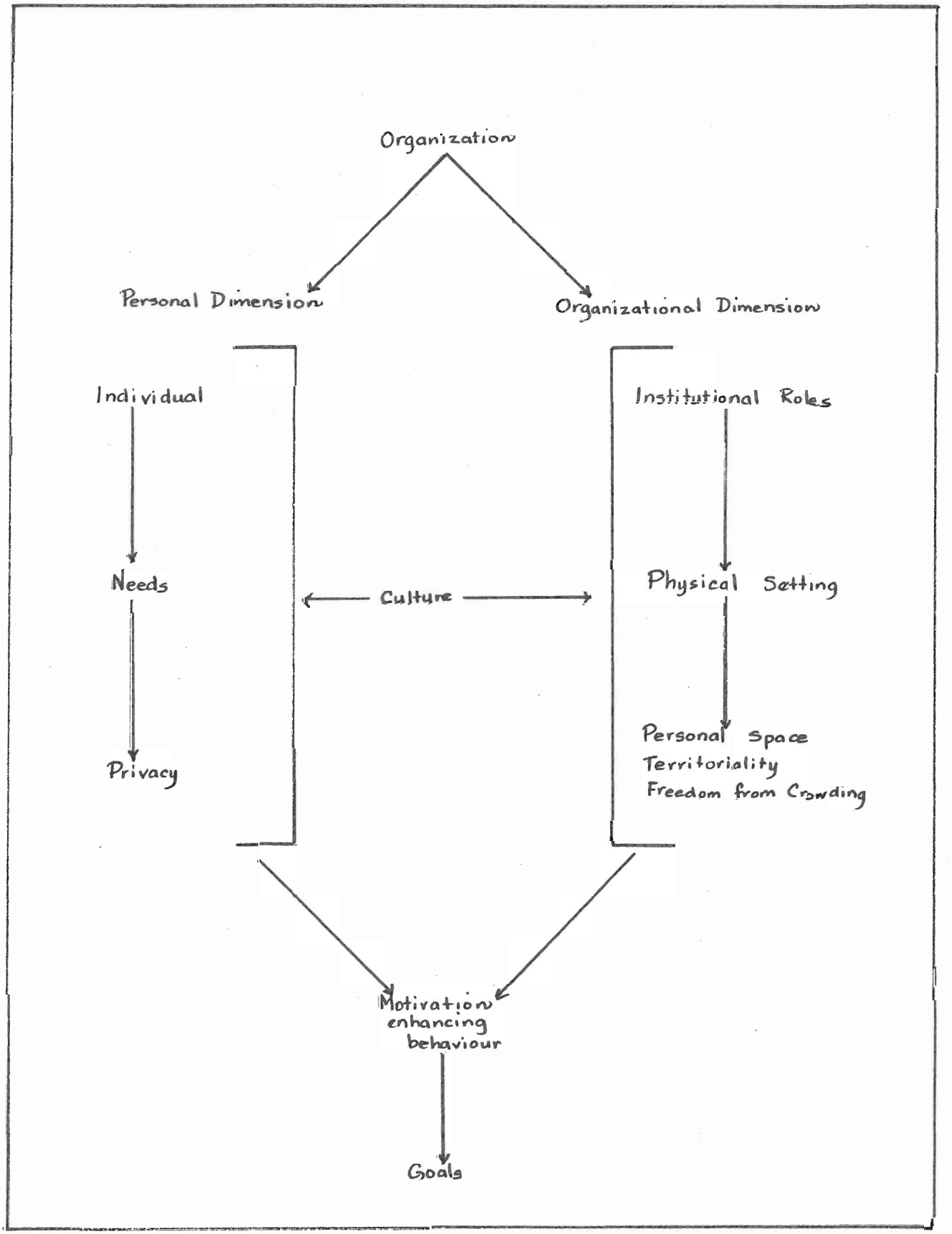
Maslow classifies as psychological needs the need for social affiliation, esteem, autonomy and self-actualization. Social affiliation refers to the need to be accepted by others as part of a group. Esteem is identified as the need for recognition as evidenced by status, prestige and power. The need for autonomy may be satisfied by the existence of a belief that one has some degree of control and independence. The highest order of need is self-actualization, the need to believe that

one's potential is able to be fulfilled.

Basically then,the elements which produce organizational behaviour have long been identified. The organization has needs, demands, expectations and goals which may conflict or be incompatible with those of the individual. After Getzels and Guba, one may represent the organization as a two dimensional system, the organizational or nomothetic dimension and the personal or idiographic dimension. From the school of thinking which developed from Maslow's insights is the added element of motivation through the fulfillment of a hierarchy of needs.

But, in the light of the results of research into man's spatial patterning and its effect on behaviour, one may postulate that a further element or organizational condition may be identified, that of the physical setting. The physical setting or physical plant of the organization directly and significantly influences each of the elements in Maslow's hierarchy of needs. It has been previously established that not only does the physical setting provide for physiological needs, but that it is a significant determinant in providing for the higher levels of Maslow's need hierarchy. The physical plant conveys symbolic messages about the organization and organizational health, projects an image about the individual member of the organization and provides for self-evaluation as well as status, prestige and power. Motivation towards effective goal behaviour and resolution of conflict between the normative and idiographic dimensions are significantly influenced by the physical setting.

Fig. 2: Physical Setting : A Determinant of Organizational Behaviour



After Getzels and Guba, organizational behaviour is seen as a product of its personal and organizational dimensions. Institutional roles or organizational demands may be defined in terms of certain normative obligations and responsibilities expected of individual members of an organization. The complementarity and interdependency of roles within an organization function to fuse individual roles into a coherent unit forming the characteristic structure of the organization. The individuals who occupy these institutional roles with their idiosyncratic personality structures and needs are part of the personal dimension. One of the basic needs of the individual and one that significantly affects the fulfilment of other needs is that of privacy. It functions to provide the opportunity for appropriate behavioural sequences and acts as a buffer between organizational pressures and individual response. Westin's four functions of privacy, as described in Chapter II, significantly affect the fulfilment of Maslow's highest order of psychological needs.

Culture is presented as the mediating variable between the two dimensions. Defined as the sum of the learned behaviour patterns and attitudes of a people, it is an important determinant of the mores, values and needs of the individual and of the way in which he perceives his world. Beyond his voluntary control, it has penetrated to the roots of his subconscious and forms the core of the infra-structure of his evolutionary inheritance. Culture prescribes the obligations and responsibilities set for institutional roles and the relationships between them. That cultures differ markedly and that unalterable distinctions between cultures do exist cannot be denied yet the egalitarian propensities of our own culture have tended to ignore these

distinctions without effectively eliminating them.

The physical setting, an element of the organizational dimension, provides a touchstone for the organizational administrator whose task is to balance the interplay between the conflicting dimensions. Physical setting may be defined as the physical plant of the organization along with its spatial characteristics which are perceived and interpreted by the individual's awareness of his surroundings. It is the product of his symbolic creative capacity which has been shaped by culturally determined values, beliefs and attitudes.

The physical setting can make provision for the satisfaction of the needs of the organizational member, and, in satisfying these needs provide the motivational force which produces effective and effectual goal behaviour. Not only do physical settings provide for the satisfaction of the lowest order of needs by the provision of thermal comfort, light, ventilation, and "elbow room", but they function to satisfy the higher orders of needs and the need for privacy. Privacy has important positive functions in personality development, in the maintenance of harmony in social interaction and in the preservation of authority and efficiency in organizations built on hierarchical principles. Physical settings satisfy the individual's need for privacy by providing for adequate personal space, territoriality and freedom from crowding. For example, settings can provide shelter from audio and visual distractions and intrusions. They can provide a sense of psychic security, are purveyors of privacy both physical and behavioural, and act as determiners of social interaction and social identity, indicators of status and self esteem and causative factors of feelings of having control over the environment. The degree to which the physical setting can provide for

the attainment of an optimal degree of privacy as determined by culture is the determining factor in how well these needs are satisfied.

The physical setting, then, plays an important role in satisfying both individual and group demands for the dialectic nature of privacy, as described by Altman, by providing for the three basic elements of privacy - personal space, territoriality, and freedom from crowding. In considering these spatial variables of the physical setting, it would be politic to consider Esser's (1965) differentiation between geographic and conceptual space. Whereas geographic space deals realistically with the physical boundaries and objects in space, conceptual space deals with abstractions and patterned relationships and is the level on which interactions take place. He contends that the larger the conceptual world of the individual, the wider the gap between the two spatial realms and the less dependent is the individual on geographical spatial indicators. As research has indicated, the three spatial variables are manifest in both geographical and conceptual space through spatial, verbal, nonverbal and physical behaviours. Identifying and defining elements of the spatial environment which are instrumental in the attainment of a desired level of privacy result in an organizational climate wherein the conflict between individual and institutional demands is kept within tolerable bounds and sufficient motivation is provided for the individual to work toward the attainment of organizational goals.

CHAPTER IV

Application of Model:

Organizations, as defined by Etzioni, have been described as deliberate human groupings formed, modified and reformed for the attainment of specific goals. Schools may be distinguished from other organizations by a number of distinctive characteristics some of which have implications for the application of the model proposed above.

Organizational members of schools may be divided into two main categories, namely, those whose membership is voluntary and those whose membership is involuntary. Compulsory attendance laws make school attendance obligatory for children on the basis of chronological age. Conceived of as vehicles of socialization or enculturation of children, schools receive children whose spatial learning is already largely complete, well developed and well learned. Although later elaboration is possible and spatial cognition may become more finely honed, pupils do have structured concepts of the use of space as channelled by cultural norms long before their entry into the school environment. Further, immigration and settlement patterns preclude a unity of culture in most of Canada, especially Ontario. Canadian cities are characterized by pockets of ethnic cultures, resistant to change or elaboration, each trying to preserve its group identity and fostering its cultural values and attitudes in its children. Since the school does not have exclusive control over the socialization of its charges but shares this

responsibility with other agencies particularly the family, it is essential that the school administrator know as much as possible about different conceptions of space and different tastes and environmental understandings of the cultural groups affecting the membership within his school. Disconfirmation of spatial norms already part of the behavioural repertoire of the school age child and of his family can lead to deviant goal behaviour.

The voluntary membership of the school organization is made up, for the most part, of teachers. Generally considered semi-professionals in a bureaucratic organization, yet purporting to be professional, their work provides for less autonomy than other professionally staffed organizations and their duties are highly specified and regulated by the organization. Not only is detailed reporting on performance a requisite of their duties, but unannounced checks and supervision by supervisors, many of whom are also semi-professionals, is an accepted mechanism of control. Few opportunities exist for individual growth and developement within their occupational group and, despite popular views to the contrary, most classroom teachers have little voice in developing and improving overall educational practice. Within the hierarchical structure of the educational organization, they occupy the lowest status level, have extremely limited influence on educational decision making yet have the greatest responsibility for the ultimate success or failure of educational policies as far as the media and the public are concerned. Declining enrolments and budgets, fewer opportunities for employment and advancement and the rise of a form of trade unionism among teachers are further causal factors of motivational and morale problems.

It has been posited that the higher the degree of competence of

an individual the less will be the influence of physical objects around him on his behaviour and that the lower his competence, the more dependent he becomes on his external environment.[1] Further, younger children have more definitively structured spatial requirements than older children or adults.[2] Thus, in applying the model to the educational organization, the administrator needs to consider both types of organizational membership and the great impact of physical setting on organizational and man-management problems, on socio-occupational relationships and the greater dependency on spatial patterning of both groups.

Keeping these unique characteristics of the educational organization in mind, the proposed model which is a conceptualization of the role of physical settings in determining organizational behaviour will be applied to a particular physical setting within the educational organization. Government financing of education in Ontario during the 1960's was manifest in the great increase in the number of physical plants and additions or renovations to existing ones. With uncharacteristic speed, school boards across the province adopted architecturally open design for the majority of these facilities. This change in physical setting should have been accompanied by concommitant changes in the other variables in the model. The obvious cultural manifestation of change was probably the introduction and the adoption of the

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[1] Hall, "Environmental Communication"; Lucille Nakemow & M.Powell Lawton, "Toward An Ecological Theory of Adaptation & Aging" in Preiser, ed., Environmental Design Research Vol.1, p. 24-32.

[2] Leanne Rivlin, Maxine Wolfe & Marian Beyda, "Age Related Differences in the Use of Space" in Preiser, Environmental Research Design Vol. 1, p. 191-203.

Hall-Dennis report on education in Ontario. The authors of the report called for a less restrictive, more pupil centred approach to education, an approach which would enable education to keep pace with the technological and scientific advances of the decade. Changes in the physical setting brought about changes in institutional roles and role behaviour. The introduction of the concept of team teaching, the use of paraprofessionals, the conception of teacher as resource person, of the pupil as a more active initiator of learning rather than a passive receptor are a few of the ways institutional roles changed with the introduction of the open space setting.

An examination of the personal dimension of the model, the individual organizational member and his motivational needs, might best begin by identifying the underlying philosophy behind the adoption of the open plan school in Ontario. Ostensibly, the design was meant to parallel like design in office structure and to facilitate the adoption of open educational strategies. In the interest of economy, it is interesting to note that projected costs for open plan schools were lower than "traditional" or "egg crate" types, and space devoted to hallways in a traditional school could, in effect, be made part of the teaching/learning area.[3] However, some researchers have argued that in freeing both teachers and pupils from the restrictions of walls, the very openness of the space has become more restrictive and provides less autonomy for the individual than the closed classrooms that have been replaced.[4] Open forms of education are, in general, those in which the

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[3]Ross Traub, Joel Weiss & Charles Fisher, Openness in Schools: An Evaluation Study (Toronto: OISE, 1976).

[4]Carol Seefeldt, Curriculum for the Preschool Primary Child (Columbus, O.:C.E. Merrill, 1976).

child is viewed as able to pursue his own interests and activities in his own style at his own rate, thereby developing understanding through a process of observing and experiencing. It is obvious that architecturally open schools do not necessarily practise open education and that schools that do practise open education are not necessarily open in architecture. Advocates of open education suggest that traditional classroom boundaries are restrictive and that open plan architecture facilitates the development of an open programme. It is interesting to note, however, that prototypes of programmes in open education were developed in traditionally constructed British classrooms. Indeed, research has shown that four real walls do not preclude open education and that it is possible to devise and carry out open educational programmes in either physical setting.[5]

Further application of the spatial behavioural component of the model necessitates and examination of the social, psychological and physical needs of the individual for culturally determined levels of privacy through the mechanisms of personal spacing, territorial behaviour and avoidance of crowding. Foerster and Soldier[6] have selected a few characteristics of the open classroom and have attempted to link these characteristics with values inherent in most North American Indian cultures. They found that the freedom of movement and common "ownership" of furniture and materials coincided with the sharing so basic to the

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[5]Jerome T. Durlak & Joan Lehman, "User Awareness & Sensitivity to Open Space: A Study of Traditional & Open Plan Schools" in D. Canter & Terence Lee (eds.) Psychology and the Built Environment (Tonbridge, Kent: Whitefriars Press, 1974), 164-169.

[6]Leona M. Foerster & Dale Little Soldier "Open Education and Native American Values in Educational Leadership XXXII (1974), 41-45.

Indian value system. Time, too, which is looked upon as a continuum in the Indian perspective, could in an open classroom be treated more casually, less in discrete pockets, more as a flow.

In most parts of Ontario, representative cultural values differ from those of the native peoples. By far, the majority of school membership is composed of those whose cultural background differs markedly from that of the North American Indian. Greatly valued by the contemporary Canadian, for example, is a "home of one's own" or a "room of one's own" with the result that he is greatly dependent on architectural features to achieve a sense of shelter from distraction and psychic security. Several researchers have suggested that open plan schools can be a barrier or an inhibiting factor in education and that the lack of internal walls does not, in itself create a set of circumstances which would free children to pursue their own interests and activities learning in their own style and at their own rate.[7] Such a hypothesis seems surprising in the light of the fact that the assumptions underlying open education would indicate a need for a flexible environment, one in which the arrangement of space and furniture can be readily modified to suit the situational requirements of an activity. Durlak and Lehman[8] however, have found that both teachers and students in open space schools rarely modify the arrangement of physical objects in the area which they occupy, preferring instead to maintain stability and the quasi-security of familiarity in their environment. In many instances,

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[7] James Rothwell, "Second Thoughts on Open Education" in The Elementary School Journal, December, 1973; R. L. Williams, "What Happened to the Schools of the Future?" in NASSP Bulletin, October, 1977, 42-46.

[8] Durlak & Lehman, op. cit., 166.

janitors and maintenance staff may be credited with designing and maintaining furniture arrangement and spatial design. Equally significant has been the recognition of age related differences in the use of space by Rivlin et al.[9] Not only did they find that age affects the use of available space, but that younger children have difficulty locating themselves in unstructured space and require clear definitions of space and explicit environmental clues. And, when one considers that internalization of spatial behavioural patterns takes place early in life, the implications inherent in the use of open plan schools begin to take on a new significance.

Large open spaces have been touted as harbingers of efficiency enabling work to flow by increasing the general interaction of a group through greater mobility and ease of movement. Research findings suggest, however, that greater teacher and pupil mobility in a large open area results in a substantial increase in non-substance time and a reduction of pupil on-task behaviour. Paul V. Gump[10] compared a number of schools whose physical plants can be classified as open plan with a like number of schools constructed along "traditional" lines. His findings indicate that the larger and more open the design of the learning area, the greater the increase in non-substance time, that is, time spent moving, waiting or getting organized, and the poorer the corresponding task behaviour scores. Further, more time was being used after moves had been made in a open school, particularly when teachers accompanied pupils from area to area. Having materials and pupils in various locales detracted from teacher task efficiency.

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[9]Rivlin et al, "Age Differences in Use of Space".

[10]Paul V. Gump, "Operating Environments in Schools of Open & Traditional Design" in School Review LXXXII (1974), 557-574..

Both children and adults in open environments have indicated a need to be able to work without being distracted, a need that physical settings function to fulfil. It is not unusual for a child to search for a place to work privately when the task at hand requires concentration and individual attention. Further, a child's value as a member of a group is enhanced when he has the opportunity to develop his own interests in solitary activity free from the pressure and presence of a group. Although informal seating arrangements facilitate conversation and interaction, they make it more difficult for a child to concentrate or work independently.[11] Social stimuli in such groupings are a major source of distraction and even unwanted eye contact reduces the effectiveness of an individual's attempts at concentration. Sommer (1969) suggests that lack of a neutral place to rest one's eyes during pauses and breaks in reading or any similar individual activity is detrimental to concentration. Besides visual distractions, the deteriorating effect of acoustical distraction on task performance of this nature cannot be discounted. Work spaces located in an area adjacent to or in the path of traffic and movement are prone to be described as detrimental to concentration and accidental distraction particularly where no visual screening has been provided. Attempts to reduce visual and acoustical distraction in an open area and so to avoid conflict have increased appreciably the time needed to coordinate and schedule activities.[12] Teachers in both open

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[11] Etta Proshansky & Maxine Wolfe, "The Physical Setting & Open Education" in School Review LXXXII (1974), 541-556.

[12] Frank A. Brunetti, Elizabeth G. Cohen, John W. Meyer & Sheila Molnar, "Studies of Team Teaching in the Open Space School" in Interchange III (1972), 95-101.

and mixed area schools have reported being distracted and disturbed and, in fact, to limiting their programmes to exclude noisy activities to lessen the likelihood of disturbing others in such settings.[13] Rather than providing a broader range of movements and activities, it would seem that the open environment makes attainment of such a range more difficult if not impossible.

A frequently cited response to sharing a large open area with a correspondingly large number of people for a large part of the day has been discomfort, frustration, irritability and various anti-social behaviours. Such settings have been reported to have produced unpleasant self-consciousness due to the tension of the continual awareness of other persons in the setting and the sense of a loss of privacy due to the constant exposure to the opinions of others. Not only is a child's conception of space and privacy internalized very early in life, but his interactions with space and physical settings yield the satisfactions or frustrations his early conditioning has prescribed.[14] Researchers suggest that human beings are capable of

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[13] Ross Traub, Joel Weiss & Charles Fisher, Openness in Schools: An Evaluation Study (Toronto: OISE, 1976).

[14] James L. Kuethe, "Pervasive Influence of Social Schemata" in Journal of Abnormal & Social Psychology LXVIII (1964), 248-254; Etta Proshansky & Maxine Wolfe, "The Physical Setting & Open Education" in School Review LXXXII (1974), 541-556.

adaptation to physical situations which do not provide adequate privacy, but that the costs of this adaptation may be considerable in terms of reduced efficiency and physical, psychological and social detriment.[15] Saegert[16] suggests that the greater possibility of interaction or accidental encounters increases the complexity of the situation creating a strain on personal and behavioural resources. Open plan and multi-purpose rooms have, in many instances, been instrumental in producing irritation and various anti-social behaviours.[17] Cacooning or withdrawal from social intercourse,[18] erratic, inappropriate or deviant role performance[19] and restlessness or disorderliness[20] are

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[15] R. Dubos, So Human An Animal (New York: Charles Scribner, 1968); Irwin Altman "Privacy: A Conceptual Analysis" in Environment & Behavior VIII (1976) 7-29.

[16] Susan Saegert, "Crowding: Cognitive Overload & Behavioral Restraint" in Preiser ed., Environmental Design Research, 254-261

[17] Kira, "Privacy & The Bathroom".

[18] C. M. Loo, "The Effects of Spatial Density On The Social Behavior Of Children" in Journal of Applied Social Psychology II (1972) 372-381.

[19] A. Bates, "Privacy - A Useful Concept?" in Social Forces XLII (1964), 429-434.

[20] Proshansky & Wolfe, "Physical Setting & Open Education".

common reactions. Stebbins[21] studied the relationship between the physical educational environment and disorderliness and found that the openness of classrooms was a contributing factor to disorderliness of pupils. A variety of student activities and distracting stimuli incompatible with the designer's aims stemmed from the openness of construction, and, although respect for the rights of others and orderly conduct may be encouraged and maintained through regulations, official sanctions, social disapproval or surveillance, tasks such as these become easier and sometimes unnecessary in a different physical environment.[22]

The very largeness and openness of an open area can be an inhibiting factor when one considers pertinent research on density and crowding. Regardless of the size of the group involved, less hostility is expressed in small rather than large rooms.[23] Research that has focused on the attitudes of users towards small and large working areas has indicated a preference for smaller, well articulated areas rather than large ambiguous ones. A sense of being crowded is more likely to be experienced in the latter area. But it is possible to modify the crowdedness of a room without altering the floor space available or the number of users.[24] The addition of partitions or screening creates a setting in which a greater number of persons can interact without experiencing crowding.

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[21]Robert A. Stebbins. "Physical Context Influences On Behavior: The Case of Classroom Disorderliness" in Environement & Behavior V (1973), 291-314.

[22]Sommer, "Ecology of Privacy".

[23]S. Smith & W. Haythorn, "Effects of Compatibility, Crowding, Group Size, and Leadership Seniority on Stress, Anxiety, Hostility, and Annoyance", in Journal of Personality & Social Psychology XXII (1972).

[24]Allen I. Schiffenbauer, J.E. Brown, P.L. Perry, L.K. Shulack, A.M. Zanzola, "The Relationship Between Density & Crowding: Some Architectural Modifiers" in Environment & Behavior IX (1977), 3-14.

Besides its functional properties, furniture has a symbolic significance to people of all ages. Perhaps the best illustration of this is found in the results of Altman and Haythorne's experiments with men in isolation whose coping behaviour was manifest in their exclusive ownership claims to the furniture in their room. Similar manifestations of territorial behaviour toward furniture has been found to be therapeutic for people in mental hospitals[25] and conflict reducing for those in prison.[26] Pupils of all ages develop well defined seating preferences adhering to them religiously even after occupying them only once.[27] Traditionally, a pupil's desk has been thought to have three major functions: providing order, and supplying both a writing surface and a place for storage. But, a study of territorial behaviour in man imputes a more significant function to this piece of classroom furniture. A desk may be classed as what Altman refers to as a primary territory, a space owned and used by an individual and clearly identified as his by others. Such control on a relatively permanent basis is central to an individual's day to day existence. Edney suggests that loss of such a territory will result in some loss of behavioural continuity and that access to these individual primary territories may help children integrate, organize and learn better.

Sharing a designated space with other persons over time promotes

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[25] Erving Goffman, Behavior in Public Places (New York: Free Press, 1963).

[26] Daniel Glasser, "Architectural Factors in Isolation Promotion in Prisons" in Wohlwill & Carson, eds., Environment & Social Sciences.

[27] Carol S. Weinstein, "Modifying Student Behavior in an Open Classroom Through Changes in the Physical Design" in American Educational Research Journal XIV (1977), 249-262.

some recognition of group identity, develops a sense of unity and facilitates social bonding. Edney argues that the development of such an identity simplifies the information process by making possible the categorization of people. Ambiguous spaces, however, make marking out territory difficult if not impossible, producing feelings of insecurity rather than group cohesiveness.[28] And, since general interaction in an open area tends to increase due to greater visibility and ease of movement, interactions become more superficial and social contacts of a more personal or intimate nature decrease, limiting the development of a group identity.

Settings communicate subtle messages about a user's status and his level in the formal hierarchy. As has been pointed out above, the more marginal a group and the lower its position, the greater its vulnerability to and dependence on architectural form. One cannot argue with the fact that the classroom teacher occupies a low level position in the educational organizational hierarchy. Further, with declining enrolments, the tightening of public purse strings, shrinking occupational opportunities, and public disenchantment with educational policies and products, the social status of teachers as a group has been adversely affected. If being less visible to others in our culture signifies higher status, does it not follow that teaching in an open setting, with the concommitant lessened control over such variables as personal space and territoriality, lowers the teacher's level in the organizational hierarchy thereby making him less influential in decision making interactions with administrators whose lesser visibility is invariably linked

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[28] Clifford B. Moller, Architectural Environment & Our Mental Health (New York: Horizon Press, 1968).

with their level in the hierarchy?

While open space has reduced the physical isolation of the teacher, it has increased the need to coordinate and schedule activities to minimize conflict, and increased the need to control student voice and activity levels so that disruptions are minimal. Without efficient and effective coordination among teachers, open areas seem to interfere with rather than to facilitate teachers' ability to manage their work. Without a rearrangement of teachers' roles open space schools have been shown to be completely ineffective.[29] Teaching teams in open space schools can and have developed serious problems. The larger the team, the greater the chance of its being unable to coordinate its activities without strong patterns of domination developing. The increased power of the team over the individual represents a loss in autonomy, a considerable constraint and pressures to conform on that individual. Interpersonal relationships among teachers become extremely important in effecting a viable school setting. When teams do work together successfully, they tend to become closed systems with little involvement or close working interaction across teams. All open space teams must meet frequently if their work is to be effective and mutual observation is essential when they are actually working jointly.[30] The active character of work in an open space school also means much less "quiet" time and many extra hours per week on collective activities such as planning. The larger the space, the larger the team, the greater constraints on a teacher's time.

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[29] Traub et al, Openness in Schools.

[30] Frank A. Brunetti, Elizabeth G. Cohen, John W. Meyer, & Sheila Molnar, "Studies of Team Teaching in the Open Space School" in Interchange III (1972), 85-101.

It would seem that application of the behavioural model has shown that the physical setting of the open space school may not have fulfilled the culturally determined needs of organizational members. Touted as a cure-all at its inception, it does not fulfil the conditions for producing a healthy organizational climate hence acceptable goal behaviour. In the contemporary educational and social milieu, the open plan school has tantalized both economy-minded administrators and ideal-oriented innovators. Open space schools could be built for less, house more students and provide opportunities for more flexibility in classroom routine and pedagogical methodology. The excitement created by this innovative architectural design clouded for a time any of its negative effects. Having the status of an innovation, the open space school conferred on its participants a certain prestige as forgers of a new frontier in education. This may be seen as a manifestation of the Hawthorne effect, the tendency of participants to experience satisfaction from being associated with an innovation rather than from any substantive effect of the design. The economy behind the design may prove expensive in terms of personal and behavioural costs. The ideal of housing more children has in many cases led to harmful overcrowding. And, the promised flexibility has proved to be less flexible than anticipated.

CHAPTER V

Summary and Conclusions:

Implicit throughout this thesis is that man's spatial behaviour is characterized by observable regularities and that virtually all behaviour is associated with the experience of space. The true nature of space cannot be perceived through sensory experiences alone but must be interpreted in the light of associations which have been patterned and molded by culture. Environment, therefore, has been conceived as a complex interpersonal communication system, a dynamic totality of the significant variables influencing behaviour. An attempt has been made to present a conceptual model designed to illustrate the major factors mediating organizational behaviour and to show the relationship among these factors, particularly, the influence of physical setting. It has been postulated that the quintessential need of the individual within the organization is that of the attainment of a desired level of privacy and that this may be achieved through mechanisms which assist in the regulation of privacy - personal spacing, territoriality, and avoidance of crowding. These mechanisms function to represent the phenomenal world as a coherent and logical system promoting a congruence between conflicting demands within an organization and resulting in an organizational climate conducive to the fulfilment of organizational goals.

Perhaps the most important implication of this thesis for educators is to underscore the importance of the individual organizational

member's multivariate need for privacy and the necessity for providing for the attainment of that need within the design of the physical setting. In assessing reactions to spatial arrangements, it must be remembered that these reactions are never simple and are not readily perceived and interpreted. Both personal characteristics and cultural inheritance of the individual play a principal role in influencing what he sees and interprets in the environment. Research has shown that although some elaboration is possible, adaptive large-scale environmental cognitive abilities are well developed if not complete by the time a child goes to school. In the light of such findings, the need for concern with regard to the physical setting is clear. In many cases, the cultural background of the teacher and that of the pupils is different as is their role and status within the organization. Cultural imperialism, a term which has been used to refer to the unconscious yet persistent tendency of one cultural group to impose its way of life and values on others, is clearly within the behavioural realm of the teacher, the organizational member of higher status and more power than the student. Awareness of such a tendency, especially with regard to physical design and arrangement of space can prevent the arbitrary imposition of environmental design decisions which might lead to a disruption of behaviour patterns and an incongruence in the use of space.

Too often, architects and planners tend to regard space as a visual construct, a problem in visual aesthetics. Although architectural technology has developed contact with experts who deal with thermal comfort, acoustics and optimal lighting and ventilation, little progress has been made with regard to the use of physical space as a medium of communication and a determiner of human behaviour. Space continues to be treated in

traditional terms of sensory inputs rather than position in a social system, activity or affect, that is, the social factors of the environment such as the need for privacy with its concomitant mechanisms, personal spacing, territoriality and freedom from crowding.

The universality of culturally determined mechanisms for achieving optimal personal spacing should serve as a reminder that although behaviours may be categorized similarly, each culture has ascribed its own particular meanings and boundaries to proxemic behaviour. Physical and psychological distancing, eye movement and contact, olfaction, verbal and paraverbal behaviours and body configurations may be regulating mechanisms common to all cultures but extensive differences exist in their inherent symbolism and meaning. Many cultures, particularly the North American and Western European, have developed a finely honed set of spatial behaviour patterns using physical objects in space. A door, for example, serves as a selectively permeable barrier between an individual and others as well as guaranteeing a sense of individuality, selfhood and embodying an element of freedom and control over the environment. Cultures have developed clear rules as to who may open and close which doors, at which times and under which conditions. One need only to examine the role of the door in North American society with regard to the development of children. A general temporal pattern can be noted in the position of the child's bedroom door. Infancy usually means that the door remains wide open. As the child grows, the door is in the half-open position until puberty at which time it is closed completely, the position being symbolic of the child's development of self.

The concept of territoriality, by definition a spatial phenomenon, involves the need for an individual (or a group) to claim and control a geographical area whether he is physically present or not. The complexity

of this psychological need is manifest in the fact that territorial behaviour involves an active use of spaces and objects within the environment as a means of providing predictability to behaviour, minimizing the complexity of possible behaviour patterns, reducing conflict and contributing to the individual member's self-esteem and self-identity. The response to the deprivation of territory has been a range of deviant and destructive behaviours. The size of territories has been shown to be a significant factor in determining the type and the quality of human activity taking place within them. Not only is the social milieu and the psychological climate of large and small areas radically different, but higher morale, greater efficiency and greater dedication to organizational goals has been achieved by changing the size of the area claimed by individual organizational members. The size of the territory over which an individual has control is also reflective of status within the organization and culturally determined rules for intrusion into territory is a measure of authority and power. The degree to which a territorial area is closed serves as a determiner of status and power as well. Most offices provide us with an example of the lowest status organizational members sharing an area with many others such as those in a secretarial pool. Those of higher status may be in an area that is separated from the others by walls or even by windows. Although windows may be transparent, they have become a culturally determined visual construct to be used from the inside so that the individual within the glassed-in office is free to look out but strict rules must be adhered to as to who and when another may look in. In organizational life, the status of the upper ranks is ensured structurally. Those of the highest rank not only have the largest offices but also the most difficult to

intrude upon.

The experience of crowding must be seen as a subjective social phenomenon, a form of psychological stress due to the restriction of the individual's range of behavioural choice. Unfortunately, it is usually seen almost solely in terms of high density, which, when examined in the light of cultural norms and cultural differences, is of little significance to the study of environment and behaviour. Density can be mediated by architecture but it cannot be adequately considered apart from enculturation processes, social organization and mechanisms used for screening of the senses from an overwhelming number of stimulation contacts. What is noteworthy about the experience of crowding is the fact that North Americans, in general, depend upon room specialization and architectural features of the environment as screening devices rather than on other mechanisms for regulating sensory input or controlling interaction. Children are particularly susceptible to the effects of the psychological stress of overcrowding, a condition which manifests itself in learning decrements and withdrawal behaviour.

The integrating factor of the three concepts discussed above is the individual's need for privacy, a dialectic process functioning to regulate interaction by increasing the range of behavioural options, to select and structure sensory and information input, to develop personal autonomy, a sense of individuality and to establish and preserve status within social organizations of all kinds. Guarantees of privacy are essential to the stability and effectiveness of any and all social systems and opportunities must be afforded for withdrawal into privacy as well as for return to active participation within the group. Regulatory mechanisms are culturally determined and culturally specific. But,

most significant is the fact that rules or guarantees of privacy are embodied in the physical structure of space and that proprieties of interpersonal spacing and contact are institutionalized in the architecture of buildings.

A building cannot be conceived apart from the human activities it serves to facilitate and the range of behaviours it is able to encourage. The internal environment of buildings must be congruent with human needs and the effective and efficient attainment of the goals of the organization that is housed within it. A strong and pervasive relationship exists between the spatial organization of buildings and the social, organizational and occupational relationships of the building-users. Child rearing practices, enculturation and early experiences within buildings give rise to mechanisms of spatial behaviour and to the development of habits and patterns of behaviour for coping with physical spaces encountered throughout the individual's life. Since one of the major roles of human spatial behaviour is to control the quantity and the quality of interaction, the implications for design of the educational environment cannot be ignored.

A model has been proposed in this thesis to identify the critical factors that determine the attainment of organizational goals and the relationship of these components one to another. The fundamental thesis is that the physical setting significantly affects behaviour and that the individual's need for privacy, a universal human need, is a determinant of the degree to which a particular environmental setting affects the organizational climate hence the attainment of organizational goals. Application of the model provides the basis for identification, definition and analysis of the causal factors of the educational environment

which facilitate goal attainment. This environment is complex and dynamic since all educational activities are simultaneously developmental and value-loaded. Bloom has stated that "the history of the learner is at the core of school learning". Part of this history is imposed by culture which provides direction and particular behavioural expectancies on each individual. This is further complicated by the fact that the maturational process implies that the individual is continually developing his psychological make up through pluralistic value selections as well as ascertaining behavioural patterns. The duality of membership within the educational organization and the developmental character of the educational system preclude a unity of cultural bias and present a special set of problems to the administrator.

There can be no doubt that the physical design of space influences the creation of a successful learning situation. Physical and spatial aspects of settings communicate symbolic messages reflecting behavioural expectancies and play a pragmatic role in goal behaviour and efficiency. Not only can they provide shelter from visual and auditory distractions but they have the power to generate a sense of community, to reflect and maintain the status of an individual or group, to promote group cohesion and identity, to provide a vehicle for self actualization and to preserve individuality and protect individuals from the conformist pressures of group life.

The implications of such findings on the designers and users of physical settings is clear. Buildings should and can reflect the needs of individual teachers and pupils alike. The key seems to be flexibility, not the pseudo-flexibility of total openness, but flexibility that takes into account the needs of the individual users of

the facilities. Static environments which are either so amorphous that nothing can be done well in them or so inflexibly specific that they can never achieve a match between the changing character of society and human needs do not permit easy alteration between community and privacy thus impeding teaching and learning behaviour. The task of organizational design then must be to create flexible physical environments that permit different degrees of control over social interaction and stimulation.

But the ultimate success of even the optimum physical design will depend, inevitably, on a knowledge of the attitudinal and value systems which organize the activities of the individuals contained within it. Ongoing evaluative measures must be used to ensure that decisions involving the organization and use of space keep in mind the concept of privacy. Application of the systemic behavioural model implies the simultaneous consideration of the four variables of the organizational environment as well as the understanding of the inter-dependence and dynamic interaction of those variables, and the definition of the behavioural mechanisms used to regulate the desired level of privacy.

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